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Transit
Association

A REPORT TO
THE MINISTER OF TRANSPORTATION

BY THE TASK FORCE ON

IMPROVED ACCESSIBILITY TO CONVENTIONAL TRANSIT SERVICES (IACTS) FOR FRAIL AND AMBULATORY DISABLED PERSONS

APRIL 1988

ACKNOWLEDGEMENTS

In carrying out this study, the Task Force received considerable assistance and input from a number of individuals and organizations which contributed substantially to the successful completion of the work. Specifically, the Task Force wishes to acknowledge the assistance of the transit system managers who responded to the survey, the bus manufacturers who provided input and to the consumer groups and individuals who submitted written material and participated in the meeetings organized by the Task Force. The interest and assistance of these people was appreciated by all members of the Task Force. Delcan Corporation (Consulting Engineers, Planners and Architects) assisted the Task Force in conducting the study and preparing the report.

EXECUTIVE SUMMARY

In recent years there has been a growing awareness of the importance of transportation services to disabled persons. The Ontario Ministry of Transportation developed a program in 1979 to provide specialized public transit services for persons unable to board regular transit vehicles. Further, in 1981, the Ministry introduced a program to fund 75% of the cost of specific features to improve the accessibility to conventional transit services for frail and ambulatory disabled persons. In 1987, an announcement was made indicating the intention to increase this funding to 90% of the cost of accessibility improvements. The objectives of this strong Government support are to make regular transit services as accessible as practical to persons who have difficulty using these services and to enable these people to continue using regular transit rather than having to start using specialized transit services.

The Task Force on Improved Accessibility to Conventional Transit Services (IACTS) was announced by the Honourable Ed Fulton, Minister of Transportation, in May, 1987. Since that time the Task Force has carried out a number of activities, including:

- Development of a study Terms of Reference.
- Review of existing conditions in Ontario transit systems and the availability of accessibility features from major transit vehicle suppliers.
- Evaluation of consumer needs through surveys and meetings with various individuals and groups representing the frail and ambulatory disabled population. Meetings were held in Ottawa, Toronto, London and Sudbury. Groups from Sault Ste. Marie and Thunder Bay attended the Sudbury meeting.
- Evaluation of a wide range of accessibility improvement features for conventional transit systems.
- Development of study recommendations and report.

The major findings and conclusions of the Study are summarized as follows:

- Ontario transit systems generally have implemented many accessibility improvements to their services such as grab rails, stanchions and priority seating. In the larger transit systems, such as Toronto and Ottawa, some significant improvements and innovations have been introduced in recent years. Also, further improvements are still being developed and implemented in many systems.

- The feedback from consumer groups indicate there is a strong need for further improvements to transit accessibility. In some systems recognized accessibility improvements, such as priority seating, still have not been implemented. Clearly there is significant scope for improvement features identified through this study which have not yet been utilized to any great extent by Ontario transit systems.

- The areas of highest priority are training to improve transit driver sensitivity and awareness, dissemination of information to transit managers and consumers and marketing of improved accessibility features which have been installed.

The study has evaluated well over 100 specific accessibility improvement features and determined which features should be supported for implementation in the short term and the long term as well as those features which require further research and development.

Based on the study findings, the Task Force has developed the following recommendations for further consideration.

i) That the Ministry support the implementation of the recommended short term and long term accessibility improvement features through increased funding levels, subject to the development of detailed program guidelines. This support would include regular subsidies, special subsidies and technical assistance in conjunction with the Ontario Urban Transit Association (OUTA) and consumer groups.

  - The evaluation carried out by the Task Force determined that the recommended short term and long term accessibility features listed in Tables 6.1 and 6.2 would improve transit accessibility for frail and ambulatory disabled persons and implementation is warranted. The Premier has previously indicated his intent to increase funding to 90% of the cost of approved accessibility features. Therefore, the features recommended should be eligible for this support, subject to development of program guidelines to address funding conditions more specifically and also to indicate which features might be subject to a demonstration application before widespread implementation is supported. Further consultation with OUTA and consumer groups will likely be required in developing the detailed guidelines.

ii) That further research and development or other investigations be undertaken for the accessibility features identified in Table 6.3.

- The features in Table 6.3 were felt by the Task Force to offer potential improvements to conventional transit accessibility. However, there are technological, operational or legal aspects of these features which are not fully understood. For this reason it is recommended that further research and development or other investigations be conducted before implementation is supported on a Province-wide basis. For example, a feature of interest is the use of a municipal bylaw and user identity card to help improve the accessibility to priority seating. This appears to have considerable potential but the legal and operational implications require further investigation.

iii) That demonstration projects be considered in several Ontario transit systems to demonstrate and evaluate various accessibility improvement features.

- The need to further evaluate and refine some of the potential accessibility improvement features has been identified. In particular, operational testing and consumer assessment of the features is required to determine their effectiveness and how they might be improved. From these demonstrations, the Ministry and/or a Steering Committee would determine:

  - Cost to purchase features for new installations.
  - Cost to retrofit features for existing installations or vehicles.
  - Usage, effectiveness, benefits
  - Additional operating costs, if any.
  - Operating training and techniques.

A cross-section of Ontario transit systems should be considered for these demonstrations.

iv) That an information program involving consumer input be considered to provide information to transit properties and consumer groups on conventional transit accessibility improvements. This program could include a regular newsletter, other printed material and special public displays.

- Many transit managers indicated interest in the improved accessibility features but noted that they required further information. Also, many of the features recommended require development of guidelines to ensure that implementation is consistent and that best results are obtained. Further, an information program which also included consumer groups would increase awareness and would encourage ongoing communication and discussions. In the past, the Ministry has successfully used newsletters to disseminate information and this could work well here. A public display involving as many of the IACTS features as possible, together with supporting material, could be utilized in a variety of situations to inform the public and increase public awareness of the program.

v) That a committee with representation from the Ministry, Ontario transit systems, consumer groups and others as appropriate be formed to monitor the implementation and effectiveness of transit accessibility improvements and to help improve communication between the industry, government and the public.

- This study has indicated that there is a strong need for improved communication between the Ministry, transit managers and consumers regarding conventional transit accessibility improvements. As more features are introduced and to obtain effective feedback from research and development activities it will be increasingly important to encourage communications. A committee with a broad representation will provide an appropriate forum to monitor the results of future initiatives and to encourage information exchange between the parties involved. This committee could also provide a forum to help develop implementation plans and standards where required.

vi) That further investigations be undertaken to develop training programs and techniques for transit staff and users regarding accessibility.

- Training is one of the areas of most concern to both consumers and transit managers. Recent initiatives by the Canadian Urban Transit Association will improve current deficiencies but these initiatives do not specifically address accessibility needs of frail and ambulatory disabled persons. Additional training tools need to be developed for both transit operators and consumers. Further training efforts should be given high priority and special funding may be required to ensure that actions are taken quickly.

vii) That action be taken to coordinate accessibility aspects that are beyond the immediate jurisdiction of the transit systems.

- Many aspects that impact accessibility to conventional public transit services are beyond the direct jurisdiction of the transit system. Examples include the planning of walkways in new subdivisions to ensure good access to transit stops or the timing of traffic signals to ensure adequate pedestrian crossing time. Coordination between the transit systems and the other agencies involved is necessary to ensure that the accessibility needs of frail and ambulatory disabled persons are recognized and accommodated as far as possible.

viii) That fare policies as they relate to attendants be investigated further.

- Use of conventional transit services by some persons, such as developmentally impaired persons, requires an attendant to travel with them. At present, transit fare policies in most transit systems in Ontario do not make any provision for attendants. The development of an acceptable approach to accommodating attendants of ambulatory disabled persons would improve overall accessibility to transit services and further investigation of potential options is warranted.

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1.0 INTRODUCTION

1.1 Discussion of the Problem

Public transit is a well established service in the larger communities in Ontario. At present, public transit services are provided in over 70 municipalities in the Province with a combined population of over 6.5 million persons (1).[1] In addition to these conventional public transit services, many of these communities provide specialized public transit service for physically disabled persons. These services, which are provided in over 50 municipalities (2), are made available to those persons who are unable to board conventional public transit services due to their disability. While the numbers of registered users of these specialized services vary between communities, typically between 1% and 2% of the total population in each community is eligible to use the services. However, there is a substantial segment of the population who are physically or mentally able to use regular public transit but experience difficulty in doing so. These people have various types of disabilities, such as the following:

- Persons who are frail or have physical difficulty which limits their ability to climb stairs, walk or stand for extended periods.
- Visual impairments.
- Hearing or speech impairments.
- Intellectual impairments.

Data provided in other studies (3, 4) indicate that there are at least one half million persons in Ontario who would experience difficulty in using conventional transit services but are not at present eligible for specialized transit services for the physically disabled. It would be very costly to accommodate the travel needs of all these people on specialized services, based on present experience. Also, including them on specialized transit may reduce the level of service available for those who need it the most. However, there are a variety of potential improvements and modifications to conventional transit services that may not be as costly as specialized transit and which can reduce the mobility difficulties faced by these persons. Further, improved access to conventional transit may not only be more cost-effective but it also contributes to a more independent lifestyle for Ontario's disabled population.

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[1] Numbers in parenthesis refer to references which are provided at the end of this report on Page 41.

1.2 Background

For many years, the Ontario Government has provided financial assistance, through the Ministry of Transportation, to municipalities for the provision of public transportation. During the 1970's the Ministry conducted a pilot project involving 5 municipalities for the provision of public transportation to physically disabled persons. As a result of this experience, a Province-wide program was introduced in 1979 which provided capital and operating financial assistance to municipalities wishing to provide specialized transit services to disabled persons. In 1979 there were 17 municipalities participating with about 250,000 trips provided. This program has expanded considerably since that time with over 50 municipalities currently providing specialized transit services and over 1.5 million trips provided in 1985.

An increased level of funding for features designed to improve the accessibility to regular transit services was introduced in 1981. Under this program, the Ministry provided 75% of the cost of projects undertaken by the municipalities to improve accessibility for ambulatory disabled persons. A list of improvement features for transit vehicles, buildings and facilities, signage, transit stops, stations and information services was identified which would be eligible for the 75% subsidy. In addition, the Ministry indicated that 75% funding would be considered for other improved accessibility projects proposed by transit operators.

Ontario transit systems have undertaken various initiatives over the past decade to improve the accessibility to conventional transit services for disabled persons. One of the major initiatives was the Technical Advisory Committee on Improved Accessibility (TACIA) Study (6) conducted by the Toronto Transit Commission (TTC). This study was undertaken to develop a program for improved accessibility to the TTC services and facilities for ambulatory disabled and frail persons. The study included a review of potential improvement features, consultation with disabled groups, cost analyses of improvement features and an overall evaluation of recommended changes and priorities. Through the study, a $4.5 million program of improvements was developed for implementation over the 1980 to 1984 period. Also, other Ontario transit systems have introduced improvements. Many transit systems have introduced priority seating on buses for frail and ambulatory disabled persons to facilitate transit use. Other innovations have been developed in specific transit systems. For example, OC Transpo in Ottawa-Carleton has introduced a flashcard designed to help visually impaired persons hail a particular bus. Also, in Ottawa a municipal bylaw and identification cards have been introduced to improve accessibility to priority seating for those persons unable to stand.

These improvements and innovations have generally been well received by users in the communities where they have been introduced. However, there are strong indications (3) that further improvements to accessibility of conventional transit services across the Province are needed. In response to this situation the Minister of Transportation, the Honourable Ed Fulton, announced the formation of a Task Force to study how regular transit accessibility could be improved and to make recommendations. The Task Force was established in May, 1987 with a broad base of membership from the Ministry of Transportation, the Ontario Urban Transit Association, the Office for Senior Citizens, the Office for Disabled Persons and a consumer group. Further to the Task Force organization, the Premier announced during the 1987 Election campaign that the subsidy for transit accessibility improvements would be increased to 90% of actual costs.

1.3 Purpose and Scope of Report

Following the establishment of the Task Force, terms of reference were developed and work proceeded. This report describes the work program and summarizes the results of the major activities, including surveys of transit systems and bus manufacturers as well as contacts with 57 consumer and service groups to discuss their needs. Detailed results of these activities are provided in the Appendices to the report. In response to this input, the Task Force evaluated a wide range of potential improvements as discussed in this report. Finally, the conclusions and recommendations of the Task Force are presented.

2.0 TASK FORCE MANDATE

The primary objectives of the Task Force include the following:

- To determine improved accessibility features for conventional transit systems.
- To identify other initiatives such as training and marketing which would improve the accessibility to conventional transit for ambulatory disabled and frail persons.

The scope of the Task Force activities is specifically directed towards the travel needs of ambulatory disabled and frail persons, including persons with visual, hearing, intellectual, sensory and other mobility problems. Generally, these people experience some level of difficulty in using regular public transit and would benefit from accessibility improvements.

The mandate of the Task Force does not include dealing with the issue of whether regular public transit services should be fully accessible to all disabled persons. Also, the mandate of the Task Force does not include investigations of specialized transit services for physically disabled persons. The mandate is very specifically focussed on regular transit services and how the accessibility to these services can be improved for persons not eligible for specialized services. It is not anticipated that these improvements will reduce the number of registrants on existing specialized services but it is expected that present regular transit riders can be kept on the conventional services longer with increased safety and convenience. Also, these improvements are intended to help reduce the fear of using conventional public transit by frail and ambulatory disabled persons.

The Task Force Terms of Reference are provided in Appendix A of this report. Task Force members are drawn primarily from the Ministry of Transportation and Ontario Urban Transit Association with other members representing specific agencies and interest groups. Table 2.1 provides a list of the Task force members.

TABLE 2.1
TASK FORCE MEMBERS

Roy McEwen, Chairman	-	Ministry of Transportation
Murray English, Secretary	-	Ministry of Transportation
Rob Barnes	-	Ministry of Transportation
Milt Harmelink	-	Ministry of Transportation
Richard Puccini	-	Ministry of Transportation
Peter Venton	-	Office for Senior Citizens' Affairs
Calvin Bernard	-	Office for Disabled Persons
Doug Mair	-	Toronto Transit Commission
Bob Evans	-	St. Catharines Transit Commission
Terry Beatson	-	Oakville Transit
Dave Ridley	-	Sudbury Transit
Bob Coghill	-	Transit Windsor
Al Cormier	-	OUTA/CUTA
Mary Whelan	-	OC Transpo
Bruce Clark	-	Canadian Council of the Blind
Glenn Johnston	-	GO Transit
Bill Smith	-	Hamilton Street Railway
Bill O'Brien	-	Delcan Corporation (Project Consultant)
Wayne Roberts	-	Delcan Corporation (Project Consultant)

3.0 GENERAL STUDY APPROACH

The general approach to the study utilized a Task Force for two main reasons:

- The Task Force has the necessary representation from the Ontario Government, Ontario transit systems and other interest groups to effectively oversee the work program.
- The Task Force provides a good forum to exchange ideas and views on how to improve accessibility to conventional transit services and to discuss experiences to date with improvement features which have been implemented.

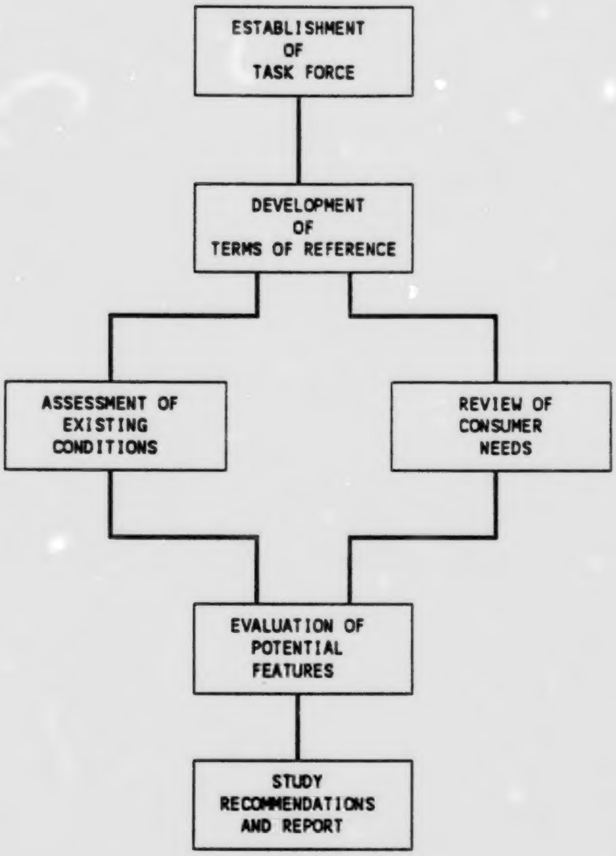
Throughout the study, the Task Force held meetings to review work completed and to plan further activities. At later stages, special Task Force meetings with consumer groups were organized in different areas of the Province to obtain additional input. These special meetings were held in Ottawa, Toronto, London and Sudbury. The Sudbury meeting included spokespersons from Sault Ste. Marie and Thunder Bay.

One of the main steps in the general approach, following development of the Task Force Terms of Reference, was a review of existing conditions. This review included a survey of all transit systems across Ontario to determine accessibility features available in each system. Also, the major suppliers of transit buses were surveyed to determine the availability and costs of specific accessibility features.

In conjunction with the foregoing tasks, another main activity of the study was the determination of consumer needs. This was carried out through an initial survey of a wide range of 57 consumer groups across the Province to determine their needs and preferences. This survey was followed up by a series of meetings between the Task Force and interested groups. Several consumer groups which were unable to attend the meeting submitted written material. In addition, reports from previous studies were reviewed to assess their findings and data. The main studies are listed as references at the end of the report on page 41.

Following these steps, the Task Force conducted an evaluation of the full list of potential accessibility improvement features. This evaluation, together with the results of the earlier work then provided the basis for the development of the study recommendations. An overview of this general approach is provided in Figure 3.1

FIGURE 3.1
GENERAL APPROACH TO STUDY


ESTABLISHMENT OF TASK FORCE
DEVELOPMENT OF TERMS OF REFERENCE
ASSESSMENT OF EXISTING CONDITIONS
REVIEW OF CONSUMER NEEDS
EVALUATION OF POTENTIAL FEATURES
STUDY RECOMMENDATIONS AND REPORT

4.0 EXISTING CONDITIONS

4.1 Overview of Ontario Transit Systems

A statistical overview of Ontario transit systems in 1985 is provided in Table 4.1. In general, conventional transit services are well established in most urban areas of the Province. Financial support has been provided by the Provincial Government to municipalities for public transit services since 1972. The largest system in Ontario is the Toronto Transit Commission (TTC) which consists of an integrated system of subways, streetcar lines and bus routes. The second largest system is OC Transpo in Ottawa-Carleton which has a network of transitways and stations (equipped with elevators due to the open environment) as well as regular bus routes. In other cities, transit services are provided by buses. Eighteen transit systems in Ontario have passenger terminal buildings. The main physical elements of transit services outside Toronto are the buses, bus stops and bus shelters.

Specialized transit services for physically disabled persons are available in most of the major urban areas of the Province. Table 4.2 provides some of the main characteristics of these services. Generally, they consist of origin-to-destination services scheduled to accommodate individual trips. The vehicles used range from ramp or lift equipped specialized buses for wheelchairs to automobiles and commercial taxis. Services are restricted to those persons registered to use the service who are unable to board conventional transit services and usually require reservations to be made at least one day in advance. The "unable to board" eligibility criteria is currently under review to broaden it to "unable to use" in recognition of persons who are unable to walk long distances to or from a bus stop area.

TABLE 4.1
1985 STATISTICS FOR CONVENTIONAL TRANSIT IN ONTARIO

73	Municipalities providing Conventional Transit Services
59	Transit Systems (some serve several Municipalities)
1	Transit System with Subway
54	Subway Stations (including R.T)
1	Transit System with Transitways
13	Transitway Stations
18	Transit Systems with Passenger Terminal Buildings
4 420	Transit Buses (diesel and trolley)
630	Subway Vehicles
6.5 million	Persons in areas served by Conventional Transit
664 million	Passenger Trips carried
$703 million	Annual Operating Costs
17 880	Kilometres of transit routes
70 000	Bus stop signs (estimated)
10 000	Passenger shelters (estimated)

TABLE 4.2
1985 STATISTICS FOR SPECIALIZED TRANSIT FOR DISABLED PERSONS

52	Municipalities providing Transit Service for Disabled Persons
340	Transit Vehicles being used
7	Municipalities using Taxis
50 500	Registered users (about 40% wheelchair users, 60% ambulatory persons)
1.6 million	Passenger Trips carried
$20.7 million	Annual Operating Costs

4.2 Transit Operator Survey

A survey of all the transit operators in Ontario was conducted by the Task Force in mid-1987. The purpose of this survey was twofold, as follows:

- To determine the extent to which improved accessibility features are currently installed on each system.
- To obtain input from transit operators regarding potential for additional accessibility features on conventional transit systems.

A questionnaire was sent to each system with a detailed set of questions. Appendix B contains a copy of the questionnaire form. Thirty nine responses were received from the 59 systems in Ontario for return rate of 66%. The responses included all of the larger transit systems. A detailed tabulation of all responses is included in Appendix B.

The results of the survey of vehicle-related features are summarized in Table 4.3. As indicated, the features most commonly in use at the present time include:

- Vertical stanchions for standing passengers (64% of the systems).
- Additional handrails and grab rails to assist passengers entering and exiting vehicles (59% of the systems).
- Stop request sign to assist hearing impaired and for the convenience of drivers and other passengers (51% of the systems).

In some cases, transit managers indicated that, while they are not currently using certain accessibility features, they do plan to utilize these features on vehicles to be purchased in future. Many transit managers indicated that they would consider using some of the accessibility features but that they required more information. The majority of these comments were from smaller transit systems. It also appeared that the large transit systems have made greater use of accessibility improvement features than the smaller systems.

A second aspect of the survey dealt with building-related accessibility improvement features in use in transit systems. Table 4.4 provides information from this portion of the survey. The TTC is shown separately in Table 4.4 because it has an extensive subway system with stations and is considerably larger than any other system in Ontario. In the case of building-related features, it should be noted that only those transit systems with buildings are included in the results shown.

TABLE 4.3
SUMMARY OF VEHICLES RELATED FEATURES CURRENTLY IN USE

	Systems Using Feature	
	Number	% of Responses
Priority Seating	19	49%
Priority Seating Signage	17	44%
Raised/Angled Priority Seating	4	10%
Padded Stanchions	2	5%
Additional Handrails/Grab Rails	23	59%
Vertical Stanchions	25	64%
Highlighting Grab Rails	13	33%
Stop Request Sign	20	51%
Improve P.A. System	6	15%
Accessible Assistance Alarm	5	13%
Audio Visual Warnings for Doors	5	13%
Accessible Stop Cord	6	15%
Kneeling Buses	8	21%
Sensitivity Training	15	38%

NOTE: i) 39 of 59 Systems responded (66%)

ii) Some systems did not respond for each feature.

TABLE 4.4
SUMMARY OF RELATED FEATURES CURRENTLY IN USE IN BUILDINGS

	Systems Using Feature (excluding TTC)		TTC
	Number	% of Responses	
Grab Rails in Washrooms	5	29%	Yes
Rest Areas with Grab Rails	3	18%	Yes
Signage (Symbols)	3	18%	Yes
Additional/Modified Benches	4	24%	Yes
Extended Stairway Handrails	1	6%	Yes
Ramps and Curb Cuts	11	65%	Yes (iii)
Coloured/Textured Floor Markings	4	24%	Yes (iii)
Improved Doors	5	29%	Yes (iii)
Additional Stair Landings	3	18%	No
Telecomm Device for Deaf	4	24%	Yes
Information for Visually Impaired	4	24%	No
Public Address System	5	29%	Yes
Pictograms	1	6%	Yes
Automated Telephone Information	4	24%	Yes

NOTE:
i) 18 Transit systems have buildings
ii) Some systems did not respond to each feature
iii) Features being installed in new buildings and major renovations to existing buildings.

Most transit systems with buildings have made some provisions for disabled passengers. In particular, ramps and curb cuts were indicated as being available in many systems and some other improved accessibility features such as improved doors and accessible washrooms in buildings used by passengers are also provided.

Other specific survey findings of the transit systems that responded are as follows:

- Only one municipality has passed a bylaw to enforce priority seating for mobility disabled passengers.

- 97% permit trained service dogs to accompany passengers who need them.

- 95% indicated that special passenger identification is not available for priority seating.

- 77% indicated that specific employee training programs regarding accessibility for disabled or frail persons are not used.

- 87% indicated that specific marketing of accessibility features is not carried out.

In summary, the review of existing transit systems indicated that in most cases some efforts have already been made to improve accessibility for disabled and frail persons. Also, there have been some fairly recent innovations in specific properties to further improve accessibility. OC Transpo in Ottawa has introduced a municipal bylaw regarding priority seating for disabled passengers. Under this bylaw, persons who need to have a seat (eg. disabled persons, pregnant women, adults with small children) can ask for the use of the priority seats at the front of the bus and persons in these seats are obliged to move. Also, OC Transpo has identification cards available for persons who are not obviously disabled or unable to stand on a bus (eg. persons with heart conditions). These cards can be used to help the individuals involved communicate their need for access to priority or other seating. While these techniques have not yet been fully evaluated they appear to be a means of improving the intended use of priority seats. Another recent innovation is the development of a flash card for visually impaired persons. This feature is a clear plastic folder with interchangeable route numbers inside. It is used by visually impaired persons to flash at approaching buses, indicating to the driver the bus route they wish to use.

In the area of driver training, a new program (The Ambassador Program) has recently been developed by the Canadian Urban Transit Association (CUTA) for application in transit systems across Canada. This is a video-based training program dealing with a number of topics, one of which is passengers with special needs. It provides information on how to recognize passengers with special needs and how to provide assistance. Also, attention is given to driving techniques and how to avoid specific problems faced by passengers with different disabilities. This training program will be available for use in early 1988. CUTA has also developed a driver training video and material for drivers of special transit services for disabled persons. This includes emphasis on increased awareness and sensitivity regarding disabilities as well as techniques for assisting disabled persons.

Notwithstanding these types of recent innovations, the survey indicated a need for improvement in the area of communications. This would appear to be needed in both large and small transit systems. More information about accessibility features needs to be made available to transit managers to assist their understanding and response to the needs of frail and disabled persons. Also, there does not appear to have been significant efforts in some transit systems to inform users about improved accessibility features. Improved marketing of these features should be carried out to advise frail and disabled passengers of them and to help offset their fear of using conventional transit services.

4.3 Bus Manufacturers Survey

At the same time as the survey of Ontario transit systems was carried out, a survey of three major urban transit bus manufacturers was conducted. The purpose of this survey was to determine which features are available on new buses from each manufacturer. All three manufacturers contacted (Ontario Bus Industries Inc., General Motors of Canada Ltd. (now MCI Canada), New Flyer Industries Ltd.) provided a detailed response to the survey and additional input. The results of the survey indicated that most of the main vehicle-related accessibility features are available as standard or optional items. The survey and detailed results are provided in Appendix C. All three manufacturers provide the following features:

- Priority seating.
- Priority seating signage.
- Additional handrails and grab rails.
- Vertical stanchions.
- Highlighting of grabrails.
- Stop request sign.
- Public address system.
- Accessible stop cord.
- Kneeling feature.

The costs quoted for some of the major features, such as kneeling buses, varied considerably between manufacturers. Additional comments from the manufacturers indicated that there was a need for standardization of signage and decals. Also, from the information provided, a significant number of the features which are available from the manufacturers are not being ordered by transit systems on new buses at present.

5.0 CONSUMER NEEDS AND PREFERENCES

A key activity in the Task Force Study was to develop a sound understanding of consumer needs and preferences regarding accessibility to conventional transit systems. The first step in this task was a general survey of identified consumer groups across the Province. Through various sources a list of 57 contacts was developed which represented approximately 30 different groups of consumers. For example, seven different contact agencies were identified which all represented the interests of hearing impaired persons. A letter and questionnaire was sent to each of the identified contact agencies. Fourteen written responses were received from those groups identified in Table 5.1. Some of these groups also provided detailed submissions outlining improvements and accessibility features of particular concern to those persons represented by that group. In summary, the response to the initial survey represented a good cross-section of frail and disabled transit users and provided considerable input. Details of the consumer group survey are provided in Appendix D.

To provide additional opportunity for input to the study, the Task Force organized public meetings and invited consumer groups to make presentations and discuss concerns with Task Force members at these meetings. Meetings were organized at each of the following locations:

- Ottawa
- Toronto
- London
- Sudbury

These meetings were well attended and helped the Task Force members develop a better understanding of particular consumer needs. Table 5.2 lists the groups represented at the meetings and detailed reports of the meetings are provided in Appendix E.

The identified accessibility improvement features most frequently supported by the consumer groups, based on the results of the survey as outlined in Appendix D, are as follows (in general order of importance):

- Sensitivity training for drivers and other transit staff to increase their understanding of disabled and frail passenger needs.
- Priority seating on transit vehicles for disabled or frail passengers.
- Provision of public address systems on transit vehicles.
- Audio-visual warnings for vehicle doorway closing.
- Accessible stop cord on transit vehicles.
- Modified fare collection boxes in transit stations.
- Improved signage in transit buildings.
- Stop request signs on buses.

In addition to responding to these specific features, a number of additional comments and suggestions were provided.

The main comments and suggestions were as follows:

- An extra lower step should be provided on all transit vehicles.
- Placement of bus shelters should be consistent
- Entrance to bus shelters should be barrier-free.
- Lower bus destination signs to eye level, in line with the bottom of window panels.
- Improved internal vehicle lighting.
- Improved priority seating signage.
- Contrasting colour strips on steps and barriers.
- Installation of parcel shelves in washroom stalls in transit buildings.
- Installation of handrails in the middle of wide stairways.
- Floors should have a non-slip surface.
- Use of television monitors in public transit buildings.
- Automatic sliding doors at all public transit buildings.
- Installation of emergency phones on platform level of transit stations.
- Conduct a public awareness campaign.
- Telephone information service that provides detailed information concerning bus stop locations, visual cues for stop identification, availability of special services and specific route information.

TABLE 5.1
CONSUMER GROUPS AND OTHER ORGANIZATIONS RESPONDING

Canadian Council of the Blind
Muscular Dystrophy Association of Canada
The Ontario Association for the Mentally Retarded
Metropolitan Toronto Association for Community Living
Ontario Respiratory Care Society
Canadian Co-ordinating Council on Deafness
Canadian Hearing Society
Multiple Sclerosis Society of Canada - Ontario Division
Canadian Paraplegic Association
Canadian National Institute for the Blind
Alzheimer Association of Ontario
The United Senior Citizens of Ontario
Huntington's Disease Resource Centre
Centre for Independent Living in Toronto

TABLE 5.2
CONSUMER GROUPS AND OTHER ORGANIZATIONS REPRESENTED AT PUBLIC MEETINGS

Ontario Advisory Council for Senior Citizens
Ontario Advisory Council for Disabled Persons
Canadian Council of the Blind
Disabled Persons Community Resources (DPCR)
Canadian National Institute for the Blind
Hagi Transit Inc. - Thunder Bay
Action Awareness
P.U.S.H. Ontario
Ontario Coalition for Senior Citizens
Centre for Independent Living
North York Senior Citizens Centre
P.U.S.H. - Central Region
P.U.S.H. - South Western Region
Epilepsy Association, Metro Toronto
March of Dimes - Sault Ste. Marie
Crusader's Handi-Transit - Sudbury
Queen's Taxi - Sudbury
Association for Community Living - Sudbury

Overall, 32 different consumer groups participated in the survey and public meetings. These groups, which were from all areas of the Province, represented a full cross-section of the frail and ambulatory disabled population. While some of the concerns expressed were outside the scope of the Task Force's investigation, a considerable amount of input was provided on specific accessibility improvement features. At the same time, this dialogue helped the Task Force to gain a better understanding of the accessibility needs of these consumers. It is significant that there was considerable agreement on the high priority needs for improved accessibility, as follows:

- Almost all groups stressed the importance of increased sensitivity and awareness on the part of transit drivers and other staff.
- The need for more public information on improved transit accessibility was noted by several groups.
- Further implementation of features already in use such as priority seating, public address systems was emphasized.

6.0 EVALUATION OF POTENTIAL IMPROVEMENT FEATURES

As a result of the various investigations described previously, a list of over 130 potential improvement features was developed. These features were organized under general headings, as follows:

- Transit Passenger Shelters.
- Bus Stops.
- Vehicles.
  - Doorways
  - Steps
  - Fare Boxes
  - Seating
  - Signage
  - Handrails
  - Communication Devices
- Buildings
  - Stairs
  - Signage
  - Doorways
  - Other Building Features
- Stations
- Operating Techniques
- Marketing

A complete listing of the features considered in the evaluation process is provided in Appendix F.

The general approach to the evaluation of the features consisted of two main steps. First, each member of the Task Force carried out an independent evaluation using the forms shown in Appendix F. Then, the Task Force as a group reviewed the results of the evaluation and developed a recommendation for each feature. This methodology is further described in Appendix F. The main criteria used in this evaluation process are described below.

Accessibility and Safety

Each feature was reviewed to determine if it contributed to improved accessibility, safety or both.

Population Benefitting

An estimate of the disabled Ontario population that could be served by conventional transit services is as follows:

- 379 000 persons with physical mobility problems.
- 95 000 persons with visual impairments.
- 169 000 persons with hearing limitations.
- 18 000 persons with intellectual disabilities.

In some cases individuals have multiple disabilities so these groups overlap to some extent. For each of these groups a rating was established indicating the level of benefit as high, medium, low or disbenefit. These ratings were used to estimate a weighted population benefitting from each feature. Also, if the feature was felt to be of benefit to all transit users, this was noted.

Technical Feasibility

Technically feasible features are those for which proven technology exists and implementation is generally possible in Ontario transit systems. Features for which the technology is not fully proven were identified as requiring further research and development. Each feature was reviewed to determine if it was technically feasible in the short term (under five years) or the long term (over five years). Also, technical feasibility was considered for features that could be retrofitted to existing equipment and for features that could be installed on new or replacement equipment.

Capital Costs

Approximate capital costs (per unit and Province-wide) of each feature were estimated based on installation on new equipment only or retrofit to existing equipment.

Operating Costs

Many features are recognized to have an impact on operating costs but specific estimates are difficult to develop. Therefore, the impact on operating costs was subjectively assessed as low, medium or high.

Implementation Priority

Using the previous criteria, an implementation priority was assigned based on a general assessment of costs and benefits.

Using these criteria and following the process described earlier the Task Force developed a general recommendation for each feature, as follows:

- Recommend support of feature implementation in the short term.
- Recommend support of feature implementation in the long term.
- Recommend that research and development or other further investigations be carried out on the feature at this time.
- Feature not recommended for implementation.

In some cases, it was necessary to specify the recommendation for a retrofit installation differently from a new installation for reasons of cost and feasibility. Tables 6.1 through 6.4 list the features in each of the recommendation categories. The number of accessibility improvement features in each case are as follows:

- Recommended for short term implementation - 76 features.
- Recommended for long term implementation - 8 features.
- Research and development recommended - 40 features.
- Not recommended at this time - 9 features.

TABLE 6.1

FEATURES RECOMMENDED FOR SHORT TERM IMPLEMENTATION

(Features are recommended for both new equipment and retrofit to existing equipment unless specified otherwise below)

PASSENGER SHELTERS

- Consistent passenger shelter placement where feasible (New shelters).
- Consistent placement of entrances towards sidewalks where feasible (New shelters).
- Bright contrasting horizontal stripe on glass panels.
- Bright contrasting vertical stripe on panel closest to the entrance.
- Benches at selected locations.
- Additional shelters at selected locations.

BUS STOPS

- Eliminate protrusions and obstructions at bus stops.
- Paint curbs in a bright contrasting colour.
- Encourage enforcement of no parking in bus stop areas.
- Encourage enforcement of snow/ice clearing at bus stops.
- Encourage clearing of snow/ice on sidewalks.
- Public education to encourage orderly queuing.
- Provide clear indication at major transit stops where transit line-ups begin.
- Encourage coordination of land use planning relative to bus stop areas.

VEHICLE FEATURES

Steps

- Bright contrasting colour stripe on the nose of all steps.
- Ensure adequate lighting around all steps.
- Heat duct in front and rear stepwells to prevent ice buildup (New buses).
- Kneeling buses (with driver training) (New buses).

Fareboxes

- Mark edge of fare boxes with contrasting colour.

Seating

- Priority seating for frail and disabled.

Signage

- Priority seating signage (decals).
- Ensure adequate lighting behind exterior destination signs.
- High contrast colours for bus destination signs.
- Enlarge lettering on exterior front destination signs.

TABLE 6.1 (Continued)

Handrails

- Ensure proper handrails and grab rails at vehicle entrances and exits.
- Extend handrails to bottom step where possible.
- Highlight grab rails and handholds with bright contrasting colours.
- Vertical stanchions and handholds.
- Highlight vertical stanchions with bright contrasting colours.
- Non-slippery texture on stanchions.

Communication Devices

- Stop request sign (Language Optional).
- Improve P.A. system (including microphones for drivers).
- Stop announcements (with driver training).
- Accessible stop request cord on surface vehicles (New vehicles).
- Stop request cord in bright contrasting colours (New vehicles).

BUILDING FEATURES

Stairs

- Benches at the top and bottom of stairs.
- Additional stair landings (New buildings and major renovations).
- Extended stairway handrails.
- Handrails in the middle of wide stairways (over 2.2 m).
- Bright contrasting stripe on the nosing of each step.
- Textured floors at top and bottom of stairs.
- Electrically heat or cover stairways that are open to the elements (New buildings).
- Installation of escalators (new buildings)

Signage

- Specialized signage for visually impaired such as signage with raised lettering.
- Signage with symbols.
- Signage with large contrasting print.
- Place second set of signs at eye level (flush with wall).

Doorways

- Improved doors with easy swing doors or automatic opener.
- Ramps and curb cuts in transit facilities (New buildings).
- Mark door handles in a contrasting colour.
- Visual indications on clear glass doors.

General

- Accessible washrooms (grab rails, rest areas, etc.) (New buildings and major renovations).
- Highlight handrails with bright contrasting colours.
- Additional/Modified benches for opportunities to rest.

TABLE 6.1 (Continued)

- Coloured/textured floor markings where appropriate (safety, direction, etc.).
- Non-skid floor surface.
- Amplification device in telephone handsets in public phones.

Stations

- Public address system
- Mark edge of fare boxes with bright contrasting colour.
- Telephone enclosures which meet the floor.
- Pictogram at entry/exit turnstiles.
- Installation of emergency phones on transit platforms.
- Conduct escalator maintenance in night hours.
- Textured and coloured border at edge of transit platforms.
- Identify each subway station with distinctive visual features.
- Provide barrier to indicate danger areas.
- Provide escalators from street level to ticket level (TTC)

OPERATING TECHNIQUES

- Automated telephone information system (where warranted).
- Sensitivity Training for all employees dealing with the public.
- Identification cards for those who wish to carry one for access to priority seating (optional pin-on for those with poor hand function).
- Bus hailing cards for those who cannot read the bus destination sign.
- Telecommunication device for deaf (TDD).

MARKETING TECHNIQUES

- Advertise courtesy seating on route guides, public advertisements and other materials.
- Put equipment on display in malls and other exhibit locations.
- Information distributed to Consumer/Interest groups.
- Public education program (ad ons, route guides, cable tv, video, activity centres visits to group homes)

TABLE 6.2

FEATURES RECOMMENDED FOR LONG TERM IMPLEMENTATION

(Features are recommended for both new equipment and retrofit to existing equipment unless specified otherwise below)

PASSENGER SHELTERS AND BUS STOPS

- Consistent placement of entrances towards sidewalk where feasible (Retrofits).
- Consistent shelter placement where feasible (Retrofits).

VEHICLE FEATURES

- Kneeling buses (Retrofit).

BUILDING FEATURES

- Electrically heat or cover stairways that are open to the elements (Retrofit).
- Signage with symbols (Retrofit).
- Ramps and curb cuts in transit facilities (Retrofit).
- Accessible washrooms(grab rails, rest areas, etc.) (Retrofit).
- Installation of escalators (Retrofit).

TABLE 6.3

FEATURES RECOMMENDED FOR FURTHER RESEARCH AND DEVELOPMENT OR OTHER INVESTIGATION

PASSENGER SHELTERS AND BUS STOPS

- Talking bus stop signs.
- Lower bus stop signs to eye level.
- Paint bus stops sign in bright contrasting colour.

VEHICLE FEATURES

Communication Devices

- Audio-Visual warnings for closing of vehicle doors.
- Provide easily accessible passenger assist alarms (audio & visual to driver only).
- Stop request cord in bright contrasting colour (Retrofit)

Doorway

- Uniform door opening equipment.

Steps

- Three steps in the bus.
- Automatic retractable stairs/step - MCI feature (as alternative to kneeling bus).
- Heat duct in stepwells to prevent ice buildup (Retrofit)
- Kneeling feature for rear door

Seating

- Floor level lights (entrances & priority seating areas).
- 30 degree angle priority seats.
- Bright contrasting seat coverings for priority seating.
- Provide municipal by-law for priority seating.
- Padded stanchions in priority seating areas.

Signage

- Enlarge lettering on exterior signs (front bus curtains - 12" letter - raised brow). (Retrofit)
- Place priority seating signage on back of seats.
- Lower destination signs to eye level (side curtain).
- Improve priority seating signage.

Table 6.3 (Continued)

BUILDING FEATURES

Stations

- Use of electronic displays for visual announcements.
- Modify fare collection boxes for easier access.
- Increase diameter of high exit turnstiles at automatic exits.
- Platform markers for short trains.
- Flat coin inserts for phones.
- Installation of "moving sidewalks" where there is a long walking distance.
- Simplified operation of vending machines.
- Modify height of vending machines.
- Installation of elevators (new stations and major renovations).
- Investigate escalator improvement features (glare, colour, stop button).

OPERATING TECHNIQUES

- Specialized information for the visually impaired and other disabled persons.
- Improved sensitivity training techniques.
- Demand responsive service for improved accessibility (eg. taxi service).
- Bus Platooning with advanced warning and automated signage.
- Free use for attendees and trainers dealing with frail or disoriented passengers.
- Investigate Bell Canada message relay system.
- Training kits for intellectually impaired on how to use system.
- Assistance to trainers of frail and ambulatory disabled.
- Portable step and other user devices carried by disabled.
- Audio receivers for visually impaired.

TABLE 6.4

FEATURES NOT RECOMMENDED FOR IMPLEMENTATION

PASSENGER SHELTERS AND BUS STOPS

- Entrances to face downstream of traffic.
- Entrances to face upstream of traffic.
- Colour code and/or number transit stops as a Province-wide feature.

VEHICLE FEATURES

Doorways

- Mark edge of doorways in a contrasting colour.

Seating

- Brighter overhead lighting in priority seating area.
- Allow space for equipment in priority seating area.

Handrails

- Padded stanchions which offer "lean-against" support.

OPERATING TECHNIQUES

- Hire attendant to help with boarding at all times.
- Free use for Blind and other disabled passengers (outside terms of reference).

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Overview of Findings

The Task Force investigation covered a wide variety of specific measures which could improve accessibility to conventional transit systems. At the same time, the study has indicated that there are several general areas which should be given priority. These are discussed further below.

Training

One of the areas which was identified frequently was improved training for transit drivers and other staff. The general purpose of this training would be as follows:

- To increase transit staff awareness of disabilities and to make them more sensitive to the needs of frail and ambulatory disabled passengers.
- To provide training for frail and ambulatory persons on the use of conventional transit services.
- To provide transit staff with specific techniques for improving services to frail and ambulatory disabled passengers.

As noted earlier, the transit industry through CUTA has been active recently in developing new and improved training material for conventional transit drivers (eg. The Ambassador Program) and for specialized transit drivers. These training programs are being implemented this year and are expected to provide improvements in the short term. However, there is a need for further expansions of this initiative. Also, there is a need to initiate special training of other transit staff who come into direct contact with the public, including telephone information staff, ticket sellers and so forth. Another aspect of training that should be given more consideration is the training of frail and ambulatory disabled persons in how to use conventional public transit. The larger transit systems, such as TTC, Ottawa and Hamilton, have been involved, on request, in helping groups better learn how to use public transit as part of general life skills training. To date this has been largely in response to specific requests. However, outreach activities would enable such training to be expanded to wider groups of frail and disabled members of the community. Also, further improvements may be possible through the use of orientation and mobility specialists to assist persons involved in this type of training activity. This assistance may be made available to transit staff or directly to the groups involved.

Communications

A second area of general concern is communication with both transit managers and users on improved accessibility features. Through this study, it was evident that some transit managers, particularly those in medium to small systems, were not aware of the various accessibility improvement features available. Also, there appeared to be a need for more information to be provided to consumer groups on available features, the extent to which these features have been utilized and some of the operational restrictions on certain features. At the same time, the detailed input provided by many consumer groups demonstrates the value in good communication between these groups and the transit systems. A concept for further consideration would be the development of an information centre which could collect information on an ongoing basis from transit systems on specific accessibility improvement features and make this available to the whole transit industry. Similarly, information could be shared between consumer groups through such a mechanism. The Ministry and OUTA have very effectively used regular newsletters in the past to facilitate information sharing and this might be used effectively again for improved communication on transit accessibility for frail and ambulatory disabled persons.

Marketing

Further to the general concern regarding communications, it was found in this study that there has not been significant efforts by Ontario transit systems or the Ministry to market improved accessibility features. Good marketing could achieve two important objectives, as follows:

- It informs users of specific accessibility features and encourages the use of these features.

- It generally increases the awareness in the community of the transit system's efforts to improve services and to accommodate special needs.

Good marketing at the individual transit system level could encompass a wide variety of activities such as newspaper and other media advertisements, information in timetables and other printed material, posters on buses and special brochures on accessibility features. Also, in larger systems special transit information services for disabled persons may be considered. For example, blind people often need special instructions on how to navigate through transit buildings and this could be provided by special transit information services. At a broader level, the Ministry and the transit industry could consider some marketing initiatives to increase awareness among both consumers and individual transit systems. A newsletter, noted earlier could be one method of doing this. Also, the development of transit accessibility displays which could be utilized at exhibitions, special events or major activity areas would be another possible method of general marketing.

Coordination with Other Agencies

There are a number of accessibility aspects of public transit which are beyond the immediate jurisdiction of the transit system. Some examples are as follows:

- General community accessibility features such as curb cuts at intersections, textured surface areas on sidewalks to assist blind persons, accessibility of public buildings and so forth.

- Provision of priority parking for disabled persons in public activity areas and transportation facilities.

- Provision of walkways in subdivisions to ensure good access to bus stops.

- Planning of land uses such as hospitals, seniors centres, community centres and so forth to ensure close proximity and good access to transit services.

- Timing of traffic signals to ensure adequate pedestrian crossing times, particularly during mid-day hours, and provision of special devices such as audio signals for specific disabled groups.

While these aspects of accessibility are beyond the control of the transit industry, improvements can be achieved through coordinated planning in the communities involved and dissemination of information to the other jurisdictions involved.

Demonstration Projects for Further Evaluation

The Task Force study has identified and generally evaluated an extensive list of features to improve accessibility to conventional transit. Also, many of these features have been considered and evaluated by individual transit systems. In some cases, in fact, different conclusions have been reached. For example, the TTC tested the kneeling feature on buses in actual operation and concluded that further application of this feature was not warranted in Toronto while other systems such as Belleville are proceeding with further implementation of the feature. In this example, the main reasons appear to be the different local conditions involved where most Toronto bus stops have curbs but smaller communities may not have curbs in residential areas. Generally, there is a need for further evaluation of the specific accessibility improvement features in actual operation. Detailed operational evaluation would provide information on the extent to which features were used, further refinements required, costs and impacts on general operations. To fully evaluate specific improved accessibility features it may be necessary for an organized demonstration project involving a full range of improvements together with the appropriate training and marketing to enable the assessment of individual features as well as a "package" of improved accessibility features.

Areas for Further Evaluation

There are a number of specific accessibility improvement features which could be refined or improved through further evaluation. For example, escalators in subway stations and transit passenger buildings can greatly improve accessibility for frail and ambulatory disabled persons but careful attention is required for lighting, colour contrast on steps, entrances and edges, provision of emergency stops and so forth. The lack of escalators in many subway stations between the street and ticket levels has been identified as a major concern to frail and ambulatory disabled persons. Kneeling buses have been found to be effective in certain situations as noted above but further evaluation could determine the most appropriate applications, the need for specific driver training and required operating guidelines. A further example is the municipal bylaw and passenger identity cards initiated in Ottawa to assist in the utilization of priority seating. With further evaluations the specific requirements to introduce this feature in other Ontario transit systems could be assessed.

Fare Policies

One area which was not addressed by the Task Force study was that of fare policies. In Ontario, fare policies are an area of local jurisdiction because passenger revenues and municipal funding are directly related under the current funding policy for transit. Typically, many transit systems provide reduced fares for certain groups such as senior citizens and free transit passes to persons who are legally blind. These types of general fare reductions have not been considered as they are outside the terms of reference of this study. Another aspect of fare policies relates to attendants. Some ambulatory disabled persons can travel on conventional transit only if they have an attendant with them. At present, most transit systems in Ontario do not make any special fare provision for attendants. Therefore, it is felt that a further study of policies for attendants including temporary trainers of frail and disabled persons, is required to determine if improvements can be developed.

7.2 Task Force Conclusions

Through the study process described earlier, several basic conclusions have been reached regarding accessibility to conventional transit for disabled and frail persons. These are summarized below.

i) Considerable progress has already been made and is continuing:

Ontario transit systems generally have implemented many accessibility improvements to services such as grab rails, stanchions and courtesy seating. In the larger transit systems, such as Toronto and Ottawa, some significant improvements have been made in recent years. Also, further improvements are still being developed and implemented in many systems. The transit industry, as represented by CUTA, has undertaken some recent initiatives in critical areas such as driver training. These initiatives will further improve transit accessibility in the future.

ii) There is still a need for further improvements.

The feedback from consumer groups indicate there is a strong need for further improvements to transit accessibility. In some systems, recognized accessibility improvements such as priority seating, still have not been implemented and clearly there is significant scope for improvements in these cases. Also, there are a number of promising accessibility improvement features identified through this study which have not yet been utilized to any great extent by the industry. For example, the priority seating bylaw and passenger identity card in Ottawa would appear to have great potential for further application.

iii) Increased transit industry awareness of accessibility features is needed.

Many of the transit systems surveyed indicated an interest in accessibility features but identified a need for further information. Particularly in smaller transit systems there did not appear to be a high level of awareness of the various features available. Also, it was evident that many systems have not made any significant initiatives to make consumers more aware of accessibility features which are available. There has not been a significant marketing effort to inform consumers of improved accessibility features.

iv) User input is essential in improving accessibility to conventional transit.

The consumer groups have many concerns regarding accessibility to transit services. While it is not always possible to satisfy all these concerns, dialogue between the industry and consumers clearly leads to a better understanding of the problems and potential improvements. Through the consumer group surveys and public meetings it was demonstrated that many consumer and user groups are prepared to make the effort to provide constructive and innovative suggestions. Organized mechanisms such as a regular newsletter could disseminate information to both consumers and the transit industry and stimulate communication between the various parties involved.

7.3 Task Force Recommendations

Based on the study findings, the Task Force has developed the following recommendations for further consideration.

i) That the Ministry support the implementation of the recommended short term and long term accessibility improvement features through increased funding levels, subject to the development of detailed program guidelines. This support would include regular subsidies, special subsidies and technical assistance in conjunction with OUTA and consumer groups.

- The evaluation carried out by the Task Force determined that the recommended short term and long term accessibility features listed in Tables 6.1 and 6.2 would improve transit accessibility for frail and ambulatory disabled persons and implementation is warranted. The Premier has previously indicated his intent to increase funding to 90% of the cost of approved accessibility features. Therefore, the features recommended should be eligible for this support subject to development of program guidelines to address funding conditions more specifically and also to indicate which features might be subject to a demonstration application before widespread implementation is supported. Further consultation with OUTA and consumer groups will likely be required in developing the detailed guidelines.

ii) That further research and development or other investigations be undertaken for the accessibility features identified in Table 6.3.

- The features in Table 6.3 were felt by the Task Force to offer potential improvements to conventional transit accessibility. However, there are technological, operational or legal aspects of these features which are not fully understood. For this reason it is recommended that further research and development or other investigations be conducted before implementation is supported on a Province-wide basis. For example, a feature of interest is the use of a municipal bylaw and user identity card to help enforce the accessibility to priority seating. This appears to have considerable potential but the legal and operational implications require further investigation.

iii) That demonstration projects be considered in several Ontario transit systems to demonstrate and evaluate various accessibility improvement features.

- The need to further evaluate and refine some of the potential accessibility improvement features has been identified. In particular, operational testing and consumer assessment of the features is required to determine their effectiveness and how they might be improved. From these demonstrations, the Ministry and/or a Steering Committee would determine:

    - Cost to purchase features for new installations.
    - Cost to retrofit features for existing building installations or vehicles.
    - Usage, effectiveness, benefits of the various features.
    - Additional operating costs, if any.
    - Operating training programs and techniques.

  A cross-section of Ontario transit systems should be considered for these demonstrations.

iv) That an information and marketing program involving consumer input be considered to provide information to transit systems and consumer groups on conventional transit accessibility improvements. This program could include a regular newsletter, other printed material and special public displays.

- Many transit managers indicated interest in the improved accessibility features but noted that they required further information. Also, many of the features recommended require development of guidelines to ensure that implementation is consistent and that best results are obtained. Further, an information program which also included consumer groups would increase awareness and would encourage ongoing communication and discussions. In the past, the Ministry has successfully used newsletters to disseminate information and this could work well here. A public display involving as many of the IACTS features as possible together with supporting material could be utilized in a variety of situations to inform the public and increase public awareness of the program.

v) That a steering committee with representation from the Ministry, Ontario transit systems, consumer groups and others as appropriate be formed to monitor the implementation and effectiveness of transit accessibility improvements and to help improve communication between transit systems, government and the public.

- This study has indicated that there is a strong need for improved communication between the Ministry, transit managers and consumers regarding conventional transit accessibility improvements. As more features are introduced, to obtain effective feedback from research and development activities, it will be increasingly important to encourage communications. A committee with a broad representation will provide an appropriate forum to monitor the results of future initiatives and to encourage information exchange between the parties involved. This committee could also provide a forum to help develop implementation plans and standards where required.

vi) That further investigations be undertaken to develop training programs and operating techniques for transit staff and users regarding accessibility and that special funding be considered for this purpose.

- Training is one of the areas of most concern to both consumers and transit managers. Recent initiatives by the Canadian Urban Transit Associations will improve current deficiencies but these initiatives do not specifically address accessibility needs of frail and ambulatory disabled persons. Additional training tools needs to be developed for both transit operators and consumers. Further training efforts should be given high priority and special funding may be required to ensure that actions are taken quickly and effectively.

vii) That action be taken to coordinate accessibility aspects that are beyond the immediate jurisdiction of the transit systems.

- Many aspects that impact accessibility to conventional public transit services are beyond the direct jurisdiction of the transit system. Examples include the planning of walkways in new subdivisions to ensure good access to transit stops or the timing of traffic signals to ensure adequate pedestrian crossing time. Coordination between the transit systems and the other agencies involved is necessary to ensure that the accessibility needs of frail and ambulatory disabled persons are recognized and accommodated as far as possible.

viii) That fare policies as they relate to attendants be investigated further.

- Use of conventional transit services by some persons, such as developmentally impaired persons, requires an attendant to travel with them. At present, transit fare policies in most transit systems in Ontario do not make any provision for attendants. The development of an acceptable approach to accommodating attendants of ambulatory disabled persons would improve overall accessibility to transit services and further investigation of potential options is warranted.

REFERENCES:

1. 1985 Ontario Urban Transit Fact Book, published jointly by Ontario Urban Transit Association and Ontario Ministry of Transportation.

2. 1985 Fact Book - Transit for Disabled Persons, published by Ontario Ministry of Transportation.

3. The Freedom to Move is Life Itself, A Report on Transportation in Ontario, prepared by The Ontario Advisory Council on the Physically Handicapped and the Ontario Advisory Council on Senior Citizens, 1987.

4. Canadian Health and Disability Survey, Statistics Canada, Ottawa, 1983-84.

5. Data Base Study for the Identification and Quantification of Transportation Disabled Persons in Canada, Transport Canada, July, 1979.

6. Report on Improved Transit Accessibility for the Disabled and Elderly, Prepared by Technical Advisory Committee on Improved Accessibility (TACIA), Toronto Transit Commission, 1980.

APPENDIX A

TASK FORCE TERMS OF REFERENCE

A.1 TERMS OF REFERENCE

A.2 MTC DIRECTIVE B-9

A.3 MTC ANNOUNCEMENT

TASK FORCE ON FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT SERVICES FOR AMBULATORY DISABLED AND FRAIL PERSONS

TERMS OF REFERENCE

BACKGROUND

In 1981 the Ministry announced a policy of providing 75% subsidy for features to improve the accessibility of conventional transit services for ambulatory (able to walk with various degrees of difficulty) disabled persons. It was intended that these features would benefit frail, visually, intellectually, sensory and hearing impaired persons, persons with a range of temporary disabilities, and other ambulatory mobility disadvantaged persons.

The Ministry has recently issued a Directive (Municipal Transportation/Transit B-9) reinforcing the intention of this subsidy program and encouraging municipalities to participate to the greatest extent possible. (See copy attached.)

The introduction and promotion of such features is important to meet the travel needs of frail and disabled persons, and thereby contribute to their independence and greater participation in society. Features to improve accessibility will provide real benefits to conventional transit operations through increased ridership and improved community service. Initiatives in this area will make for the most efficient use of existing and new transit facilities to enabling the conventional and specialized systems to complement each other in meeting the range of transportation needs experienced by disabled and frail persons. The specialized systems will function more effectively as they would be used to serve exclusively their intended users, namely, those persons considered eligible under the Provincial eligibility guideline.

OBJECTIVE

The objective of the Task Force are twofold:

- to identify and evaluate improved accessibility features for conventional transit facilities which address consumer needs, and which meet, within reason, the intent of the subsidy program;
- to identify and evaluate operational and promotional techniques to make conventional transit more accessible for ambulatory disabled and frail persons.
- recommend improvements to conventional transit.

SCOPE

The Task Force will address the travel needs of ambulatory disabled and frail persons. For the purposes of the Task Force, ambulatory disabled persons shall include persons with visual, hearing, intellectual, sensory, and other mobility problems.

Transit facilities shall include bus, subway, light rapid transit, streetcar, trolley (and other modes which may be used to complement transit service in some communities such as taxis) vehicles, terminals, and stations.

APPROACH

Activities

1. Identify, evaluate, and review consumer needs, and cost effectiveness of proposed systems.

2. Prepare summary list of all improved accessibility features for ambulatory disabled and elderly persons. (See Ministry Directive B-9 attached.)

3. Identify and evaluate possible additional features that could be added to the above list immediately or through further investigations, or through fu-ther research and development.

4.(a) Identify by survey, the extent to which existing features have become standard equipment on transit vehicles, or are being specified by transit properties when ordering vehicles.

(b) Identify extent to which existing features are being used by ambulatory disabled and frail persons.

5. Identify and evaluate improved operating techniques to make conventional transit more attractive to ambulatory disabled and frail persons.

6. Identify how driver and other transit personnel training programs are, or can be enhanced, to optimize the use of existing or other special features.

7. Identify and evaluate a target marketing strategy to attract more ambulatory disabled and frail persons to use conventional transit services.

8. Make recommendations to the Minister concerning ways to improve accessibility to conventional transit with an evaluation of their potential benefits.

Consultation

The Task Force shall consult with groups representing the interests of frail and disabled persons. Such groups should include the Provincial level of:

The Canadian Hearing Society
Canadian National Institute for the Blind
BOOST
Ontario Association for the Mentally Retarded
United Senior Citizens of Ontario
Persons United for Self-Help (PUSH)
Action Awareness
Arthritis Society
Others

The Ontario Advisory Councils for Senior Citizens and Disabled Persons, and the Offices for Senior Citizens' Affairs and Disabled Persons should also be consulted.

Timing

It is the desire that the Task Force complete its assignment by the end of 1987.

Expected Results

The Task Force should produce:

A. Summary documents including all those items listed under "activities".

B. Recommended additions to Municipal Transit Manual and associated Directive B-9.

C. Recommendation for additional study with appropriate individuals, groups, etc., to complete such studies.

D. Recommendations for potential areas of Research and Development.

Ministry of
Transportation and
Communications
Ontario

MINISTRY DIRECTIVE

Program: Municipal Transportation, Transit

Directive: B-9

Issuing Authority: Executive Director

Date of Issue: 1987-05-25 Effective Date: 1987-04-01

TO: Assistant Deputy Ministers, Executive Directors, Regional Directors, Directors, District Engineers, Regional Managers, Office Managers

SUBJECT: Ministry Policy on Features to Improve the Accessibility of Conventional Transit Systems for Ambulatory Disabled Persons-Eligibility for 75% Subsidy

ALTERNATIVE INDEX LISTING(S):
MUNICIPAL TRANSIT SUBSIDY;
IMPROVED ACCESSIBILITY FEATURES

PURPOSE

To clarify and reinforce this Ministry's current policy with respect to the capital subsidy of features that improve accessibility of conventional transit systems for ambulatory disabled persons, and to encourage municipalities and operators to implement such features.

BACKGROUND

In 1981 the Ministry announced a policy of providing 75% subsidy for features to improve the accessibility of conventional transit services for ambulatory (able to walk with various degrees of difficulty) disabled persons. It was intended that these features would benefit frail elderly, visually, mentally, and hearing impaired persons, persons with a range of temporary disabilities and other ambulatory disabled persons.

The Ministry considers that the introduction and promotion of such features is important to meet the travel needs of elderly and disabled persons, and thereby contribute to their independence and greater participation in society. Features to improve accessibility will provide real benefits to conventional transit operations through increased ridership and improved community service. Initiatives in this area will make for the most efficient use of existing and new transit facilities by enabling the conventional and specialized systems to complement each other in meeting the range of transportation needs experienced by disabled and elderly persons. The specialized systems will function more effectively as they would be used to serve exclusively their intended users, namely, physically disabled persons unable to board conventional transit facilities.

It should be noted, however,that in the April 28, 1987 Thron Speech, the Government announced its intention to expand th Provincial eligiblity guideline for specialized transit services. The precise definition and implementation schedule for a new guideline of "unable to use conventional transit facilities" will be developed in consultation with municipalities, service operators, and consumer groups.

The Ministry will work with the Ontario Urban Transit Association, and consumer groups representing elderly and disabled persons, to address how the use of features to improve the accessibility of conventional transit systems may be furthered.

In the meantime the Ministry reinforces the intention of this subsidy program and encourages municipalities to participate to the greatest extent possible.

POLICY

All of the following items are normally eligible for subsidy at 75%. This subsidy rate is normally available for both initial purchase and retrofit of existing facilities. Further information regarding these items and their application is found on pages 3-12 to 3-25 inclusive of the Municipal Transit Manual.

Vehicles

Courtesy Seating and Signage
Additional Handrails and Grab Rails at Entrances and Exits
Vertical Stanchions and Handholds
Highlighting of Grab Rails, Handholds and Stepwell
"Stop Requested" Sign
Features to Reduce Step Heights

Stations, Terminals and Facilities

Grab Rails in Public Washrooms
Grab Rails In Rest Locations
Signage
Additional/Modified Benches
Extended Stairway Handrails
Ramps and Curb Cuts
Coloured/Textured Floor Markings
Improved Doors
Additional Stair Landings

Information Services

Telecommunications Devices for the Deaf
Information for Visually Impaired Persons
Public Address Systems

Other items, not appearing on this list, may be considered for capital subsidy, subject to proper justification.

DISTRIBUTION:	Internal as required. All Municipal Clerks in Municipalities having Transit Services All Municipal Transit Managers and Coordinators (Conventional and Physically Disabled)

-0-

Ministry of
Transportation and
Communications
Ontario

news release

FOR IMMEDIATE RELEASE
22/05/87

Fulton announces joint MTC/OUTA task force

TORONTO -- Ontario's Ministry of Transportation and Communications will join forces with the Ontario Urban Transit Association (OUTA) to examine ways to improve transit services for elderly and disabled passengers, Minister Ed Fulton announced today.

Known as the Task Force on Features to Improve Accessibility of Conventional Transit, it will consult with organizations representing the interests of the elderly and disabled and municipalities throughout Ontario.

A review will be made in jurisdictions where improvements are in place and proven effective.

"Effectively meeting the travel needs of the elderly and the ambulatory disabled is our number one goal," the minister said. "This task force, whose members represent our ministry and the province-wide municipal transit industry, will be responsible for identifying the improvements and modifications necessary to meet those needs."

...../2

Added Fulton: "While it is generally accepted the need will always be there for door-to-door services for some disabled persons, a significant portion of the elderly and disabled can use regular public transportation services if certain features are provided."

Among the features to improved accessibility are "kneeling" buses, tactile floor markings, public address systems, "stop request" signs on buses, telecommunications devices for the deaf, ramps, benches, hand and grab rails and courtesy seating.

"The task force will gain a good overview by examining opportunities to accommodate the needs of persons with limited mobility, visual, mental and hearing impairments as well as those with temporary disabilities," added Fulton.

"This overview will allow us to make necessary and needed improvements to transit systems, with MTC covering seventy-five per cent of the cost under the Municipal Transit Program."

- 30 -

From: Public and Safety
Information Branch
1201 Wilson Avenue
Downsview, Ontario
M3M 1J8
Telephone: (416) 235-2771

FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT

Vehicle Related Improvements

FEATURES	PURPOSE
Courtesy seating	To assist the elderly and disabled who have difficulty standing on moving vehicles.
Courtesy seating signage	To identify seats for use by the frail elderly and disabled.
Padded stanchions in courtesy seating areas	To provide additional safety.
Additional handrails and grab rails at vehicle entrances and exits	To assist elderly and disabled boarding and alighting from vehicles.
Vertical stanchions and handholds	To provide added support for passengers who have difficulty standing in moving vehicles.
Highlighting grab rails, handholds and stepwells	To highlight supports such as grab rails and handholds and potential hazards such as steps.
Stop request sign (Language Optional)	To indicate that the bus will stop at the next stop. This feature is especially helpful for the hearing impaired.
Improve P.A. system and stop announcements (Audio & Visual)	To improve clarity of announcements. A visual display of the station stops would also be included in this project.
Provide easily accessible passenger assistance alarm	Involves installation of an accessible passenger alarm system
Audio visual warnings for closing of vehicle doors	Involves implementing of an audio visual warning on all vehicle doors with an automatic delay between the audio visual warning and the closing of the doors.

Accessible stop request cord on surface vehicles	To locate the stop request cord/ touch bar at a location accessible to elderly and disabled passengers.
Kneeling buses	To lower the entrance door on buses for easier entrance.
Sensitivity training	Personnel training so that they are aware of and understand the needs of the disabled.

Building Related Improvements

FEATURES	PURPOSE
. Grab rails in public washrooms	To provide support.
. Resting areas with grabrails	To provide assistance and resting support areas.
. Signage (Symbols)	To provide information to the disabled in an easily understood manner.
. Additional/Modified benches	To provide a resting facility for the elderly and disabled. The bench should be designed so that it is easily identified for the visually impaired.
. Extended stairway handrails	To provide added support.
. Ramps and curb cuts	To improve building accessibility.
. Coloured/textured floor markings	To indicate to the visually impaired that there is a change in grade or barrier.
. improve doors	Many doors are too narrow for convenient entry or the doors may be difficult to open.
. Additional stair landings	To provide resting areas.
. Visual ear	The hearing impaired can use a visual ear device to acquire transit service information.

Information for the visually impaired	To assist the visually impaired to identify frequently used bus routes.
Public address systems	To provide a means of communicating with the elderly and disabled and most especially the visually impaired.
Modified fare collection boxes in rapid transit stations	To help the disabled who have difficulty depositing fares in the existing fare boxes.
Increased diameter of high exit turnstiles at automatic exits	To widen the high gate type exits in rapid transit stations.
Pictograms at entry/exit turnstiles	To locate internationally recognized pictograms on rapid transit turnstiles.
Simplified operation of vending machines	To improve the operating instructions as well as providing for easy retrieval of fare media.
Platform marker for short trains	To install appropriate platform markers and/or sign displays to indicate short train platform positions.

APPENDIX B

TRANSIT OPERATOR SURVEY

B.1 METHODOLOGY
B.2 QUESTIONNAIRE
B.3 TRANSIT PROPERTIES RESPONDING
B.4 RESULTS

TRANSIT OPERATOR SURVEY

B.1 METHODOLOGY

As mentioned in the Terms of Reference in Appendix A, one of the main activities of the Task Force was to identify the extent to which existing features have become standard equipment on transit vehicles or are being specified by transit systems when ordering vehicles. To do this, the Task Force developed a questionnaire to send out to Transit Operators across the province. The questionnaire was divided into three parts; the first section dealt with vehicle related improvements, section two dealt with building related improvements and section three consisted of Yes/No questions dealing with specific features of the transit system. The questionnaire is shown in Section B.2.

Seventy-four questionnaires were sent out, fifty-nine of which were to properties with transit systems. Thirty-nine questionnaires were returned. A list of the properties responding is shown in Section B.3. Based on the responses, a statistical summary was constructed. For each vehicle and building related improvement, the percentage of Transit Systems responding were noted. Also, for each question in part three, the percentage of yes and no answers was tabulated. The results are presented in Section B.4.

B.2 QUESTIONNAIRE

QUESTIONNAIRE ON FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT

1. From the following list of features (vehicles and buildings related), please check the blanks that apply to your transit system.

   (a) Vehicle Related Improvements

FEATURES	PURPOSE	NOW ON VEHICLES	NOT ON VEHICLES	NOT AWARE FEATURE AVAILABLE	COMMENTS
. Courtesy seating	To assist the frail and ambulatory disabled who have difficulty standing on moving vehicles.				
. Courtesy seating signage	To identify seats for use by the frail and ambulatory disabled.				
. Raised and angled courtesy seating	To assist frail and ambulatory disabled.				
. Padded stanchions in courtesy seating areas	To provide additional safety.				
. Additional handrails and grab rails at vehicle entrances and exits	To assist frail and ambulatory disabled boarding and alighting from vehicles.				
. Vertical stancions and handholds	To provide added support for passengers who have difficulty standing in moving vehicles.				

QUESTIONNAIRE ON FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT

(CONTINUED)

FEATURES	PURPOSE	NOW ON VEHICLES	NOT AWARE NOT ON VEHICLES	FEATURE AVAILABLE	COMMENTS
. Highlighting grab rails, handholds and stepwells	To highlight supports such as grab rails and handholds and potential hazards such as steps.				
. Stop request sign (Language Optional)	To indicate that the bus will stop at the next stop. This feature is especially helpful for the hearing impaired.				
. Improve P.A. system and stop announcements	To improve clarity of announcements.				
. Provide easily accessible passenger assistance alarm	Involves installation of an accessible passenger alarm system.				
. Audio visual warnings for closing of vehicle doors	Involves implementing of an audio visual warning on all vehicle doors with an automatic delay between the audio visual warning and the closing				
. Accessible stop request cord on surface vehicles	To locate the stop request cord/ touch bar at a location accessible to frail and ambulatory disabled passengers.				

QUESTIONNAIRE ON FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT

(CONTINUED)

	FEATURES	PURPOSE	NOW ON VEHICLES	NOT ON VEHICLES	NOT AWARE FEATURE AVAILABLE	COMMENTS
.	Kneeling buses	To lower the entrance door on buses for easier entrance.				
.	Sensitivity training	Personnel training so that they are aware of and understand the needs of the frail and ambulatory disabled.				

. Please list any additional features that could be added to this list which you presently use or features that you feel might be beneficial to the user.

QUESTIONNAIRE ON
FEATURES TO IMPROVE ACCESSIBILITY
OF CONVENTIONAL TRANSIT

FEATURES	PURPOSE	NOT APPLICABLE	NOW INCLUDED	NOT INCLUDED	NOT AWARE	COMMENTS
(b) **Building Related Improvements**						
. Grab rails in public washrooms	To provide support.					
. Resting areas with grabrails	To provide assistance and resting support areas.					
. Signage (Symbols)	To provide information in an easily understood manner.					
. Additional/Modified benches	To provide a resting facility for the frail and ambulatory disabled. The bench should be designed so that it is easily identified for the visually impaired.					
. Extended stairway handrails	To provide added support.					
. Ramps and curb cuts	To improve building accessibility.					

(CONTINUED)

QUESTIONNAIRE ON FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT

FEATURES	PURPOSE	NOT APPLICABLE	NOW INCLUDED	NOT INCLUDED	NOT AWARE	COMMENTS
· Coloured/textured floor markings	To indicate to the visually impaired that there is a change in grade or barrier.					
· Improve doors	Many doors are too narrow for convenient entry or the doors may be difficult to open.					
· Additional stair landings	To provide resting areas.					
· Visual ear	The hearing impaired can use a visual ear device to acquire transit service information.					
· Information for the visually impaired	To assist the visually impaired to identify frequently used bus routes.					

QUESTIONNAIRE ON FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT

(CONTINUED)

	FEATURES	PURPOSE	NOT APPLICABLE	NOW INCLUDED	NOT INCLUDED	NOT AWARE	COMMENTS
.	Public address systems	To provide a means of communicating and most especially, the visually impaired.					
.	Modified fare collection boxes in rapid transit stations	To help the frail and ambulatory disabled who have difficulty depositing fares in the existing fare boxes.					
.	Pictograms at entry/exit turnstiles	To locate internationally recognized pictograms on rapid transit turnstiles.					
.	Simplified operation of vending machines	To improve the operating instructions as well as providing for easy retrieval of fare media.					

QUESTIONNAIRE ON FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT

(CONTINUED)

FEATURES	PURPOSE	NOT APPLICABLE	NOW INCLUDED	NOT INCLUDED	NOT AWARE	COMMENTS
. Platform markings	To install appropriate platform markings and/or sign displays to indicate platform positions where trains and multiple bus loading positions exist.					
. Automated telephone information systems	To provide transit schedulling information, decrease waiting time at transit stops.					

. Please list any additional features that should be added to this list which you presently use or features that you feel might be beneficial to the user.

QUESTIONNAIRE ON
FEATURES TO IMPROVE ACCESSIBILITY
OF CONVENTIONAL TRANSIT

2. Does your Municipality have any special by-laws for Transit to enforce courtesy seating or any other feature for frail or ambulatory disabled on conventional transit?

   YES ☐ NO ☐

   If yes, please provide details.

3. Has the feasibility of adding any of the aforementioned features to your transit system been discussed or approved formally with your council or commission?

   YES ☐ NO ☐

4. Are trained dogs allowed on your Transit System? ie seeing eye, hearing ear, service dogs

   YES ☐ NO ☐

   If yes, please indicate which of these types are allowed.

5. Is braille signage or other similar materials used on your transit system?

   YES ☐ NO ☐

   If yes, please provide brief details.

6. Are your frail and ambulatory disabled passengers provided with special identification to allow them to use priority seating?

   YES ☐ NO ☐

   If yes, please provide brief details.

QUESTIONNAIRE ON
FEATURES TO IMPROVE ACCESSIBILITY
OF CONVENTIONAL TRANSIT

7. Please list operational improvements that your transit system now uses, or would consider implementing to make it easier for ambulatory disabled and frail persons, to use conventional transit, (e.g., driver training that would ensure frail persons are seated in priority seating before pulling away from bus stop - in off-peak hours).

Now in Use.

Would consider using.

8. In your staff training programs including drivers, do you have any training specifically geared to handling ambulatory disabled or frail passengers?

NO ☐ YES ☐

If yes, please briefly discribe the program.

9. To ensure that ambulatory disabled and frail persons are aware of special features or special operating techniques to serve them, does your transit property do any marketing in this area (eg. priority seating advertised on route guides)?

NO ☐ YES ☐

If yes, please briefly describe.

10. Please provide additional comments that you feel might assist the task force.

B.3 TRANSIT SYSTEMS RESPONDING

- Town of Ajax
- City of Barrie
- Belleville Transit Commission
- Brantford Public Utilities Commission
- City of Brockville
- Burlington Transit
- City of Chatham
- Town of Collingwood
- Town of Elliot Lake
- Town of Fort Erie
- Town of Fort Erie
- Town of Fort Frances
- Hamilton Street Railway Company
- Townships of Kingston
- City of Kitchener
- Town of Leamington
- Town of Lindsay
- London Transportation Commission
- Town of Markham
- Town of Milton
- Town of Newmarket
- Niagara Transit
- Orillia Transit
- Oshawa Public Utilities Commission
- OC Transpo
- City of Peterborough
- Town of Pickering
- Town of Richmond Hill
- Sarnia Transit
- City of Sault Ste. Marie
- City of St. Thomas
- Stratford Public Utilities Commission
- City of Sudbury
- Thunder Bay Transit
- City of Timmins
- Toronto Transit Commission
- Town of Vaughn
- Town of Walden
- Town of Whitby
- Transit Windsor

B.4 RESULTS

STATISTICAL SUMMARY OF TRANSIT OPERATOR SURVEY

- 74 questionnaires were distributed
- 59 different transit systems surveyed
- 39 questionnaires were returned

VEHICLE RELATED IMPROVEMENTS

Feature	% of Responses Using Feature
• Priority seating	49%
• Priority seating signage	44%
• Raised/angled courtesy seating	10%
• Padded stanchions	5%
• Additional handrails/grab rails	59%
• Vertical stanchions	64%
• Highlighting grab rails	33%
• Stop request sign	51%
• Improve P.A. system	15%
• Accessible assistance alarm	13%
• Audio visual warnings for doors	13%
• Accessible stop cord	15%
• Kneeling buses	21%
• Sensitivity training	38%

- 18% of respondents indicated "not aware" of raised/angled courtesy seating
- 17% of respondents indicated "not aware" of accessible stop cord

BUILDING RELATED IMPROVEMENTS

- Applicable to 14 transit properties
- 1 property has subway system

Feature	% of Responses for Systems Using Feature
Grab rails in washrooms	20%
Resting areas with grab rails	10%
Signage (symbols)	20%
Additional/modified benches	20%
Extended stairway handrails	0%
Ramps and curb cuts	50%
Coloured/textured floor markings	15%
Improve doors	20%
Additional stair landings	10%
Visual ear	20%
Information for visually impaired	20%
Public address system	20%
Modified fare collection boxes	0%
Pictograms	0%
Simplified vending machines	0%
Platform markings	20%
Automated telephone information	20%

2.	Municipal by-laws to enforce courtesy seating?	3% yes	97% no
3.	Accessibility features discussed/approved by council or commission?	15% yes	85% no
4.	Trained dogs allowed?	97% yes	3% no
5.	Braille signage/other used?	3% yes	97% no
6.	Special I.D. to use priority seating?	6% yes	94% no
8.	Specific staff training?	17% yes	83% no
9.	Specific marketing?	9% yes	91% no

APPENDIX C

BUS MANUFACTURERS SURVEY

C.1 METHODOLOGY
C.2 QUESTIONNAIRE
C.3 RESULTS

BUS MANUFACTURERS SURVEY

C.1 METHODOLOGY

In addition to the Transit Operator Survey, the Task Force developed a separate questionnaire to send out to three Ontario Bus Manufacturers: New Flyer Industries, General Motors of Canada and Ontario Bus Industries. The purpose of this questionnaire was to find out which features were offered as standard equipment, which were offered as optional and which were not offered at all by the various bus manufacturers. The questionnaire was divided into two sections. The first section dealt with vehicle related improvements and the second part consisted of a question dealing with the cost of installing the kneeling bus feature. The questionnaire is shown in Section C.2.

All three questionnaires were returned. A statistical summary of the results was constructed and is presented in Section C.3.

C.2 QUESTIONNAIRE

FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT

1. From the features listed below, please indicate those that are now standard, optional, or not offered on your vehicles, along with an estimate of the number of buses or percentage with each feature. Please add any comments that might be helpful.

Vehicle Related Improvements

FEATURES	PURPOSE	STANDARD	OPTIONAL	NOT OFFERED	IF OPTIONAL, ESTIMATE NUMBER OR % OF BUSES ORDERED WITH THIS FEATURE (ONTARIO ONLY)	COMMENTS
. Courtesy seating	To assist the frail and ambulatory disabled who have difficulty standing on moving vehicles.					
. Courtesy seating signage	To identify seats for use by the frail and ambulatory disabled.					
. Padded stanchions in courtesy seating areas	To provide additional safety.					
. Additional handrails and grab rails at vehicle entrances and exists	To assist frail and ambulatory disabled boarding and alighting from vehicles.					

FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT

(CONTINUED)

FEATURES	PURPOSE	STANDARD	OPTIONAL	NOT OFFERED	IF OPTIONAL, ESTIMATE NUMBER OR % OF BUSES ORDERED WITH THIS FEATURE (ONTARIO ONLY)	COMMENTS
. Vertical stanchions and handholds	To provide added support for passengers who have difficulty standing in moving vehicles.					
. Highlighting grab rails, handholds and stepwells	To highlight supports such as grab rails and handholds and potential hazards such as steps.					
. Stop request sign (Language Optional)	To indicate that the bus will stop at the next stop. This feature is especially helpful for the hearing impaired.					
. P.A. system	To improve clarity of announcements.					
. Provide easily accessible passenger assistance alarm	Involves installation of an accessible passenger alarm system.					

FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT

(CONTINUED)

FEATURES	PURPOSE	STANDARD	OPTIONAL	NOT OFFERED	IF OPTIONAL, ESTIMATE NUMBER OR $ OF BUSES ORDERED WITH THIS FEATURE (ONTARIO ONLY)	COMMENTS
. Audio visual warnings for closing of vehicle doors	Involves implementing of an audio visual warning on all vehicle doors with an automatic delay between the audio visual warning and the closing of the doors.					
. Accessible stop request cord	To locate the stop request cord/touch bar at a location accessible to elderly and disabled passengers.					
. Kneeling buses	To lower the entrance door on buses for easier entrance.					

QUESTIONS ON FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT SERVICES

2. Are there any other improvements to enhance accessibility for ambulatory disabled and frail passengers which are not included in the previous list (e.g., lower first step being designed for both front and rear doors)?

3. (a) Please indicate the name of the transit properties in Canada that have ordered the kneeling feature on new coaches?

Property	No. of Coaches

(b) Please indicate the current cost of adding this feature to a new transit coach.

$ _______________ per coach.

(c) Please indicate the current cost of retrofitting this feature to an exisiting coach.

Materials $ _____________

Labour (Hours) ___________

($) _____________

4. Do you have any further ideas and/or suggestions that would assist the Task Force in its work?

C.3 RESULTS
STATISTICAL SUMMARY OF BUS MANUFACTURER SURVEY

- 3 questionnaires distributed
    - New Flyer Industries Limited (NF)
    - General Motors of Canada Limited (GM)
    - Ontario Bus Industries Inc. (OB)

- 3 questionnaires were returned

VEHICLE RELATED IMPROVEMENTS

Feature	Standard on Vehicles	Offered as Optional Feature	Not Offered
priority seating	OB	GM (0)[*] NF	
priority seating signage		NF GM (0) OB (40)	
padded stanchions		NF OB (10)	GM
additional handrails/grab rails	OB	GM (100) NF	
vertical stanchions	OB	NF GM (100)	
highlighting grabrails		NF GM OB (60)	
stop request sign	OB GM	NF	
P.A. system		OB (10) GM (25) NF	
accessible assistance alarm		NF OB	GM
audio visual warning		OB (0) NF	GM
accessible stop cord	OB	GM (0) NF	
kneeling buses		GM (0) NF OB (20)	

[*] ( )= % of buses ordered with the feature

2. (Other features not included in list)

   - NF supplies optional chairlifts

3a) (Transit properties that have ordered kneeling feature)

NF - Vancouver, Toronto
OB - Collingwood (2), Stratford (2), Barrie, Midland, Belleville
GM - Vancouver (28)

3b) (Current cost of adding kneeling feature)

   - $390.00 to $ 1,400.00

4. (Further suggestions)

   - NF suggested investigating trends in U.S. properties

Comments/Suggestions

- 30° angles courtesy seating to eliminate side to side motion

- Standardization of decals and signage

- No demand for accessible passenger assistance alarm

- Time delay of using kneeling buses on high density routes will have varying impact as viewed by drivers and schedulers. This impact needs to be understood and evaluated.

APPENDIX D

CONSUMER GROUP SURVEY

D.1 METHODOLOGY
D.2 LETTER
D.3 LIST OF GROUP RESPONDING
D.4 RESULTS

CONSUMER GROUP SURVEY

D.1 METHODOLOGY

Another activity of the Task Force was to identify the extent to which existing features were being used by ambulatory disabled and frail persons. The Task Force also wanted to identify additional improvements which would be beneficial to the various groups. To accomplish this, the Task Force sent out fifty-three letters to various Consumer/Interest Groups across Ontario. A copy of the letter is illustrated in Section D.2. The letter requested each organization to review and comment on existing features and also suggest to the task force other improvements which they considered to be beneficial.

Fourteen of the Fifty-three groups responded. A list of those that responded is shown in Section D.3. A statistical summary and a list of the additional comments and suggestions put forth by the various groups was constructed and is presented in Section D.4.

Ontario

Office of the
Minister

Ministry of
Transportation and
Communications

Ferguson Block
Queen's Park
Toronto, Ontario
M7A 1Z8
416/965-2101

August 19, 1987

SAME LETTER SENT TO THOSE ON ATTACHED LIST.

Dear

In the attached press release of May 22, 1987, I announced that a task force was being established to improve accessibility of conventional transit for disabled and frail elderly persons. You will be pleased to learn that this task force (members attached) is now active and is seeking your input.

Early in the 1980's, MTC and the Toronto Transit Commission, did an independent study to assess various features to improve accessibility for ambulatory disabled persons. As a result of this study, the Ministry adopted a policy to provide 75% subsidy to municipalities which incorporate such features on transit systems.

While recognizing that special services will always be required for some disabled individuals, continuing improvements to conventional transit service will enable a significant number of frail elderly and disabled persons to better use these services. Such improvements include physical features as well as training, information systems, marketing and public awareness.

I am requesting that you and your organization review those features now available (see attached list), and also suggest to the task force other improvements which you would consider to be beneficial.

If your organization has conducted any recent public transportation surveys, the task force would appreciate receiving the results. Of specific interest would be:

- number of persons your organization represents;
- number of persons who could use regular public transit;
- number of persons who actually use regular public transit;
- reasons why persons who could use regular public transit, but do not.

In addition to a written response, should you feel that a verbal presentation to the task force is desirable, please indicate so in your reply. Consultation sessions are being planned for Toronto, London and Ottawa in the fall of this year.

Your written response by the end of September, or a request to make a presentation, should be directed to:

Mr. Murray English,
Transit Office,
3rd Floor, West Tower,
1201 Wilson Avenue,
Downsview, Ontario.
M3M 1J8
(416) 235-4026)

I look forward to receiving your valued input to this very important activity and your cooperation in improving transit services for all of the citizens of Ontario.

Yours sincerely,

Ed Fulton

Ed Fulton,
Minister.

D.3 LIST OF GROUPS RESPONDING

Canadian Council of the Blind
Muscular Dystrophy Association of Canada
Ontario Association for the Mentally Retarded
Metropolitan Toronto Association for Community Living
Ontario Respiratory Care Society
Canadian CO-ordinating Council on Deafness
Canadian Hearing Society
Canadian Paraplegic Association
Alzheimer Association of Ontario
United Senior Citizens of Ontario
Ontario Advisory Council on Senior Citizens
Huntington's Disease Resource Centre
Centre for Independent Living in Toronto
Ontario Advisory Council for Disabled Persons

D.4 RESULTS

STATISTICAL SUMMARY OF CONSUMER RESPONSES

- 53 letters were distributed
- 14 responses were recieved

VEHICLE RELATED IMPROVEMENTS

Feature	% of responses that agreed with feature	% of responses that disagreed with feature	% of responses that did not comment on feature
• priority seating	36%		64%
• priority seating signage	21%		79%
• raised/angled courtesy seating	14%		86%
• padded stanchions	14%		86%
• additional handrails/ grab rails	14%		86%
• vertical stanchions	14%		86%
• highlighting grab rails	14%		86%
• stop request sign	30%		64%
• improve P.A. system	36%		64%
• accessible assistance alarm	21%		79%
• audio visual warnings	31%		69%
• accessible stop cord	31%		69%
• kneeling buses	14%	7%	69%
• sensitivity training	50%		50%

BUILDING RELATED IMPROVEMENTS

Feature	% of responses that agreed with feature	% of responses that disagreed with feature	% of responses that did not comment on feature
• grab rails in washrooms	14%		86%
• resting areas with grabrails	14%		80%
• signage	31%		69%
• additional benches	14%		86%
• extended handrails	21%		79%
• ramps and curb cuts	21%	7%	79%
• coloured/textured floor markings	21%		79%
• improved doors	14%		86%
• additional stair landings	21%		79%
• T.D.D. (for hearing impaired)	7%	14%	79%
• information for visually impaired	21%		79%
• public address systems	21%	7%	69%
• modified fare collection boxes	31%		69%
• pictograms at entry/exit turnstiles	14%		86%
• simplified operation of vending machines	21%		79%
• platform markings for short trains	21%		79%

COMMENTS/RECOMMENDATIONS

- Recommend that a planned public education program be devised to sensitize and alert regular transit users.
- Provide an extra lower step on all transit buses.
- Set up an information booth to assist people who are lost or confused.
- "Passenger alarm system must be audio-visual".
- "Compatibility problem between visual ear and some of the other more popular tdd's on the market".
- "Telephones should be equipped with amplification devises in the handset and which are also hearing aid compatible".
- "Term "Visual Ear" is not appropriate. "Visual Ear" is the name of the device that was produced by Northern Telecom and is actually no longer available. The generic term for devices which allow hearing impaired people to communicate over the phone is "TDD" (Telecommunication Device for the Deaf)".
- "Public Address Systems are a real problem for hearing impaired people. They need to be accompanied by visual information as well".
- Use of the electronic billboards in the subway for visual announcements.
- "The height of the vending machine on the wall is just as important if not more than the modification".
- Install elevators in existing and new subway stations.
- When there is a long distance from subway to exit, install a "moving sidewalk".
- "Courtesy seating on buses and subways should also allow space for equipment".
- "Courtesy seating signage should be on the seat itself rather than above or beside it".
- Extend handrails to bottom step.
- Vertical stanchions be padded and, if possible be of a slope that would offer "lean against" support.

COMMENTS/RECOMMENDATIONS (cont'd)

- Driver operated door openers, "many find it difficult to trigger the existing step door mechanism in adequate time".
- Automatic retractable stairs as an alternative to kneeling buses.
- Suggest identification cards for those who wish to carry one, or, for those with poor hand function, a pendent or pin that could readily make the transit employee aware of the individual's possible need for designated seating and/or assistance.
- Major public awareness campaign.
- Installation of parcel shelves in washroom stalls.
- Install handrails in the middle of wide stairways.
- Coat floor with a non-slip surface.
- Use of television screens in public transit buildings.
- Automatic sliding doors at all public transit buildings.
- Installation of emergency phones on platform level of subway stations. "These phones should have flat coin inserts".
- Placement of bus shelters should be consistent.
- Entrance to bus shelter should be consistent.
- Consider using "talking" bus stop signs.
- Lower bus route signs to eye level, in line with the bottom of window panels.
- Telephone information service that provides detailed information concerning bus stop locations, visual cues for stop identification, specialized service availability and specific route information.

APPENDIX E

CONSUMER GROUP MEETING REPORTS

E.1 METHODOLOGY
E.2 MINUTES OF PUBLIC HEARING
  E.2.1 OTTAWA
  E.2.2 TORONTO
  E.2.3 LONDON
  E.2.4 SUDBURY

CONSUMER GROUP MEETING REPORTS

E.1 METHODOLOGY

In addition to the Consumer/Interest group letters, the Task Force invited all groups to give a verbal presentation at one of four public hearings. Sessions were held at the following locations:

December 1, 1987 - Ottawa
December 2, 1987 - Toronto
December 3, 1987 - London
December 14, 1987 - Sudbury

The minutes of the four public meeting are presented in Section E.2.

E.2 MINUTES OF THE PUBLIC HEARINGS

E.2.1 OTTAWA PRESENTATIONS

HELD ON: December 1, 1987 - 10:00 a.m.

HELD AT: Rideau Room
Ontario Ministry of Government Services
8th Floor, 10 Rideau Street, Ottawa

ATTENDANCE:	R. McEwen	Ministry of Transportation
	M. English	Ministry of Transportation
	K. Moore	Ministry of Transportation
	M. Harmelink	Ministry of Transportation
	C. Bernard	Office Disabled Persons
	P. Venton	Office of Senior Citizens
	M. Whelan	O.C. Transportation
	D. Ridley	Sudbury Transit
	B. Clark	Canadian Council of the Blind
	W. Roberts	Delcan
	M. Williams	C.N.I.B.
	N. Cassidy	Multiple Sclerosis
	P. Allen	Multiple Sclerosis
	B. Hamner	Ontario Senior Advisory Council
	S. Barnger	Council of Disabled Persons
	R. Finley	C.U.T.D.

ITEMS OF DISCUSSION:

1. Mr. Roy McEwen opened the meeting and introduced participants. He outlined the background to the Task Force which was formed by the Minister of Transportation in early 1987. Prior to 1987, the main work on accessibility to public transit was a study (TACIA) by TTC in 1979-80. Since then there have been some specific initiatives by certain transit operators to improve accessibility.

2. The Task Force terms of reference were outlined in detail by Mr. McEwen. He noted that the terms of reference do not include addressing the issue of full accessibility.

3. Presentations

3.1 Nicky Cassidy - Multiple Sclerosis

Ms. Cassidy noted that the main reason why persons who could use regular public transit do not is fear. Some of the fears mentioned were:

- Having to wait for a bus without having any sheltered place to sit.
- Not being able to get to the bus stop due to not snow clearance.
- Not being able to catch the bus.
- Not being able to board safely.
- Not being able to get a seat.
- Bus starting before you are seated.
- Not being able to ring to get off.
- Not being able to get off safely.

She also discussed the features to improve accessibility of conventional transit suggested by the Task Force, noting that sensitivity training was the most essential service needed.

A copy of her presentation is attached.

3.2 Mary Williams - CNIB

Ms. Williams discussed the features which are vitally significant to visually impaired passengers. Specific points noted were as follows:

- Courtesy seating should be more obviously marked.
- Bus numbers should be as large as possible with good contrast.

- A contrasting colour strip should be used to indicate a potential hazard or to highlight an aid.
- Drivers should always announce the major transfer points on a route as they approach the stops.
- Sensitivity training should be a part of the basic training for all transit personnel.

A copy of her presentation is attached.

3.3 Mr. Bert Hamner - Ontario Seniors Advisory Council

Mr. Hamner discussed the major problems encountered by Senior Citizens on conventional transit. The major problems mentioned were as follows:

- First step on buses.
- "Jack Rabbit" starts.
- Entrances to bus shelters should face downstream of traffic.
- Seats inside the shelters should be facing the traffic.
- Bus queuing.

3.4 Rae Finley - Committee for Urban Transportation for the Disabled (CUTD)

Ms. Finley noted that no matter how accessible conventional transit is made, the problem of getting to a bus stop and waiting for a bus is beyond the ability of many elderly and disabled persons. Ms. Finley mentioned that the CUTD believes that the door to door service will always be the most desirable way to transport those with mobility handicaps.

3.5 Discussion and Comments

- Mr. Venton noted that the major focus should be on sensitivity training.
- Mr. Harmelink suggested courtesy seating for all seats on a bus. He noted that this would perhaps reduce the fear of not being able to get a seat on the bus.
- Ms. Whelan noted that there needs to be more identification of seating for the disabled.

3.6 Findings to Date

Wayne Roberts reviewed the general activities conducted to date and the ongoing evaluation process.

4. Additional Comments

- It was noted that better lighting is needed behind the signs.
- Bruce Clark noted that there should be a guarantee of courtesy seating.
- It was noted that the present courtesy seating signage is not useful at all.

5. Closing Remarks

Mr. McEwen thanked participants for their attendance and input. He noted that further evaluation work will be required prior to preparing the Task Force Report.

Minutes prepared by:

W. Roberts

WBO:kmg/WBO.013
encl.

MS Multiple Sclerosis Society of Canada
Ontario Division
SP Société canadienne de la sclérose en plaques
Division de l'Ontario
880 Wellington Street, Suite 510, Ottawa, Ontario K1R 6K7
(613) 232-4278

SUBMISSION TO JOINT MTC/OUTA TASK FORCE

Good morning. I am here to represent the Multiple Sclerosis Society of Ontario. I must say, however, that I am NOT representing the views of the Toronto chapters since their transportation modes and problems are very different than those of most other urban centres in Ontario. The Toronto chapters are part of Transaction and you already have their views.

As a disabled person presently using regular transit on a daily basis, I felt that appearing before you rather than sending in a written submission would be more informative for both sides. I would hope that after my presentation we could have a question and answer period.

In the Ministry of Transportations and Communications' letter to the Ontario Division of the Multiple Sclerosis Society, questions are posed. I can answer two:

a. How many people does your organization represent? It represents 9,000 people in Ontario.

b. "Reasons why persons who could use regular public transit, but do not." The answer in one word is fear.

The enclosure to the Ministry's letter also lists a number of options to make public transit more accessible to some disabled and frail elderly persons. I would also like to address these points later.

WHY PEOPLE WHO COULD USE REGULAR PUBLIC TRANSIT DO NOT - FEAR:

1. The first fear is in having to wait for a bus without having any sheltered place to sit to do so. And in winter, without snow clearance, there is the fear that you won't even be able to get to the stop.

2. The second fear is being able to catch the bus.

3. The third fear is being able to board safely.

4. The fourth and most important fear is not being able to get a seat.

5. The fifth fear is that the bus will start off before you are seated.

6. The sixth fear is not being able to ring to get off.

7. The final fear is not being able to get off safely.

FEATURES THAT WOULD ELIMINATE THESE FEARS

1. WAITING. Shelters and benches are absolutely essential as is snow clearance at stops.

Some cities already have some shelters/and or benches but many do not. For many of us, walking to the bus stop is one thing. But because different muscles are needed, having to stand for even short periods of time makes regular transit service inaccessible. And in our climate, if the snow has not been cleared from the stop, then again the service is inaccessible.

2. CATCHING THE BUS. In most large cities, there are central stops for several buses. The disabled and frail elderly cannot run around trying to find their bus. They must wait at the stop and try and hail it.

At the moment OC Transpo, in conjunction with the CNIB, is providing the visually impaired with bus hailing kits. I am sure that these kits issued to the disabled and frail elderly province-wide would largely solve the problem of the fear of missing a bus.

There should of course be driver "sensitivity training" alerting them to be on the look-out for all people holding the bus hailing kits.

3. BOARDING. Once the bus has stopped for you, getting on can be difficult for both the visibly and invisibly disabled. The visually impaired and frail elderly are almost always afforded the needed time by drivers and other passengers to board safely and get seated. As for the disabled, the only safe way at the moment is to board after the other passengers have embarked so no one pushes you from behind. The drivers can then see the visibly disabled and the invisibly disabled show, in Ottawa, their disabled pass.

In the case of the disabled however "sensitivity training" is needed. All too frequently, visibly or invisibly disabled, the drivers look and leave before you are safely seated.

4. GETTING A SEAT. "Courtesy seating" in Ottawa is now regulated by By-law no. 54 of 1986. Essentially, the disabled and frail elderly, with the proper medical certification, are issued with disabled identity cards which we pay for. There are signs in the buses which are replicas of the cards. The cards state that they are to be used exclusively to assist eligible disabled passengers in REQUESTING a front lateral seat on an OC bus. Possession of the card DOES NOT GUARANTEE a seat will be available.

Many ambulatory disabled people and frail elderly are frightened of switching from the parallel service to the regular service by getting a pass since THEY need to request the seat and a seat is NOT guaranteed. In using the pass for two years now, I have found that many drivers ignore it and one must be polite but assertive in order to get a seat. So their fears are justified. Still the cards work. But they could work better and for more people.

The present system of cards for the disabled available in Ottawa should be improved:

a. at least by "sensitivity training" both for drivers and passengers;

b. there could be changes in the wording to alleviate the fears of the timid disabled and frail elderly.

c. the cards, enhanced or as is, should be implemented province-wide.

Their availability in Ottawa has enabled me and a few hundred others to continue to use regular transit rather than the specialized services.

5. TIME TO GET SEATED. Whereas drivers as mentioned above allow more time for visually-impaired riders and the very frail elderly to get seated, they rarely do for those of us who use canes, crutches or passes only. This means that the bus is put into motion before you even have a chance to get a seat - a very dangerous proposition for many of us. "Sensitivity training" to allow us more time to get seated is needed.

6. INDICATING THAT YOU WANT TO GET OFF. Some buses have cords that run down the side of the windows so that we can reach them more easily. All buses should be so equipped so that we can indicate when we want off without resorting to either asking someone to ring for us or asking the driver to stop - both methods leaving much to be desired.

7. GETTING OFF SAFELY. "Sensitivity training" is again needed. We need time. Many of us cannot stand while the bus is in motion. We therefore have to wait until the bus stops to stand up to get off. If we are the only ones getting off, frequently the bus driver if he does not see anyone standing at the exits, will start to leave. Again, you need to be assertive and yell stop - a rather undignified and demeaning spectacle at the best of times. And again, in winter, there is the fear that the snow will not have been cleared and that we will be faced with a snowbank.

I would now like to address the features to improve accessibility of conventional transit suggested by you.

FEATURES

Courtesy seating and signage: I have already discussed briefly the pass system presently in use in Ottawa. Without the pass and signage, a few hundred people would presently be using the parallel specialized service for the disabled - called ParaTranspo in Ottawa. The cards have also had a side effect: "sensitizing" Ottawans to some degree of the needs of the disabled.

If you are assertive and polite, you now always get a seat. Only once in two years have I had to politely remind the "sleepers and readers" occupying the front lateral seats that there was a fine if one of them did not yield a seat. They ALL got up when I mentioned this. This occurred when the cards first appeared. Now, when you show your card on boarding, you almost never even have to ask for a seat. It is voluntarily given.

Also, on two occasions all six seats were occupied by people who fit the category of those eligible to use the priority seats when a seventh person boarded the bus. On both occasions, without being asked, the people sitting in the front side seats yielded to the seventh person. I am not sure what would have happened if a seat had not been voluntarily given. Perhaps the definition of "front bench seat meaning lateral bench(es)" could be changed to "front seats" to eliminate that problem. This would also solve the dilemna of the cards stating that OC does not guarantee a seat.

The words "do not guarantee a seat" prevent a number of ambulatory disabled people I have spoken to from switching from Para to regular service. If they cannot be guaranteed a seat, they will continue to use the expensive parallel service because they are afraid they may have to ask for a seat and perhaps not get one.

The signs are excellent. The only problem with them is that there are more and more buses without them. They are absolutely essential if the system is to work.

Having said all the above, even if the cards can only serve the assertive ambulatory disabled, they are well worth it. I want to use regular service. Anyone else in the RMOC who also really want to can. All others in the province who want to should have the same opportunity.

I cannot emphasize enough how much we believe that the Ottawa system should be extended to other Ontario cities _ either as is or with improvements.

Padded stanchions: If the padded stanchions give you a more solid hold, then I would recommend these.

What is really needed is a non-slippery stanchion to assist the disabled and frail elderly in boarding and getting off. The present metal stanchions are slippery. In Ottawa, reflective tape has been applied. Even the tape is more secure than the bare post. The only problem with it is that it is peeling off many of the stanchions. Perhaps something could be designed which would be both reflective and non-skid. That would "kill two birds with one stone".

Additional handrails and grab rails at vehicle entrances and exits: yes please. The newer buses in Ottawa already have these and they are invaluable.

Vertical stanchions and handholds: I am not sure these would serve the disabled and frail elderly. Standing with or without stanchions and handholds is too dangerous.

But additional stanchions would go a long way to clearing the front of the bus of standees. While sitting in the front seats in a crowded bus, you are frequently crushed by the standees while the middle and back (except the back door where there are vertical stanchions) remain empty. If there were more stanchions in the bus, those needing to stand would be more amenable to the request "move to the rear please" I am certain.

Highlighting grab rails, handholds and stepwells: again, yes please. Many of the Ottawa buses have these features and they are invaluable. Many people with Multiple Sclerosis have visual difficulties. The highlighting is important for them. But they are also a safety feature for all riders.

Stop request sign: I am not hearing impaired. But most Ottawa buses have these signs and I find them invaluable. It saves me from having to try to pull the cord if I have not heard the bell.

Improve PA system and stop announcements (audio/visual): Stop announcements would be invaluable for those with visual difficulties which include some of our people. And I am sure the visual display would be extremely welcomed by the hearing impaired.

Provide easily accessible passenger assistance alarm: It is not a point high on our priority list but certainly would be a welcome addition.

Audio visual warnings for closing of vehicle doors: I do not think this applies to the regular disabled bus users in most cities. This feature is probably one applicable to the modes of transportation in Toronto.

Accessible stop request cord on surface vehicles: I have mentioned above the urgent need for these in all buses.

Kneeling buses: Most disabled persons, ambulatory or otherwise, would instinctively say yes please to this one.

However, I think we have to be practical. In centres other than Toronto, the climate is such that during a large part of the year, most disabled and frail elderly persons must use the parallel system where they exist. Even some ambulatory disabled persons must use the parallel system during the winter months while using the regular system in the summer. We believe that the money needed to retrofit or order kneeling buses would best be used for additional kneeling buses for the parallel services that already exist or in establishing parallel services where they do not exist.

If money were no object, then we would want both. But one fear is that if kneeling buses were generally made available on regular buses, eventually the parallel systems might disappear. And that would be a backward step. As mentioned, in our climate the parallel services are of the utmost importance for the disabled wherever they may live - in small or large centres.

Conclusion: If we can have our cake and eat it too, then yes let us have kneeling buses on the regular buses for the "Rick Hansens" of this world who would love to use the regular service whatever the climate. But not at the cost of the parallel services presently available or hopefully an extension in smaller cities of parallel services.

Sensitivity training: We always leave the best for the last. This is THE most essential service needed. Of all the features you have mentioned, this is where the most can be accomplished. Without sensitivity to the needs of the disabled on the part of drivers, passengers and management, very little can be accomplished. With it, even with no physical changes to the system much can be accomplished. I have mentioned specifics above.

I have not addressed the "Building Related Improvements" since these do not, by and large, apply to the centres outside Toronto.

You all appear to be "temporarily able-bodied". That is why I am here to address you personally. Most able-bodied people cannot have real empathy or know the challenges we face daily. Understanding however is teachable through "sensitivity training".

I am certain that as a collective group you are all sensitive to our needs. We need to make the rest of the world _ at least in Ontario _ as sensitive as you.

Thank you.

ISSUES CONCERNING ACCESSIBILITY FOR THE BLIND AND VISUALLY IMPAIRED TO CONVENTIONAL URBAN TRANSIT SYSTEMS

Presented by

THE CANADIAN NATIONAL INSTITUTE FOR THE BLIND
Ottawa District Office
320 McLeod Street
Ottawa, Ontario
K2P 1A3

November 1987

Mary Williams
Co-ordinator of
Direct Client Services

The Canadian National Institute for the Blind

L'Institut national canadien pour les aveugles

Ontario Division/
Division de l'Ontario

Patron: The Honourable
Lincoln M. Alexander P.C. Q.C.
Lieutenant Governor of Ontario

Patron: L'honorable
Lincoln M. Alexander P.C. c.r.
Lieutenant-gouverneur de l'Ontario

A United Way
Member Agency
Membre de
Centraide

The visually impaired and blind is fortunate in Ottawa in having a transit service, whose staff and planners have worked closely with CNIB to address some of the special needs of these passengers.

The following headings are subjects of vital significance to visually impaired passengers.

SIGNAGE

The signage in the new transit stations is in clear, large, good contrast lettering; ideal for visually impaired person. Most of the signs are at eye level, aiding those people, who require a short focal distance to see print. The signs hanging from the roof are not useful to our clients.

Some visually impaired passengers are able to see the number at the front of a bus either by using a telescope or by waiting until the bus is very close to them. The number should be as large as possible, with good contrast and with a strong light behind to aid seeing at night. The number at the side of the bus is sometimes helpful to the low-vision passenger, although the position of this number is too high for people with a short range of focus.

CONTRAST

The use of a bright, contrasting colour is helpful to the low-vision passenger to indicate a potential hazard or to highlight an aid. Such hazards might be a curb edge, stairs at a transit station, the steps onto and inside the bus, glass doors and windows. A contrasting colour strip along the edge of the steps and a bright line of colour at eye level on the glass would alert a visually impaired passenger to the danger.

An aid might be a hand rail on the steps or a grab rail inside the bus.

OC Transpo have already provided some of these facilities.

COURTESY SEATS

In most buses, at least six seats are set aside for elderly and disabled passengers. These seats are indentified by a small notice, using symbols of disabilities attached to the window. It would be helpful if these seats were more obviously marked, perhaps by marking the seat themselves. These seats are often occupied by "regular" passengers, who are reluctant to move for a low-vision passenger.

RECOGNITION OF DESTINATION

Many blind passengers have difficulty in recognizing where they are on the bus route. Some of the newer buses have a public address system, but it is rarely used. Many bus drivers will inform the blind rider that he has reached his destination, but frequently the driver forgets and the blind person is let off further along the route, feeling disorientated and frustrated.

We would recommend that it becomes a regular and enforced practice for the driver to announce the major transfer points on the route as he approaches the stops. This would help not only the visually impaired rider but visitors to the city and dozing passengers as well.

MULTIPLE ROUTE BUS STOPS

The new system on Slater and Albert, involving bus platforms accommodating four buses at a time, is causing problems for all passengers but particularly for the visually impaired. OC Transpo and CNIB have worked closely in developing a bus hailing wallet (enclosed). The blind passenger can hail the bus he requires by displaying his bus number in the special wallet and holding it for the driver to recognize. This is proving to be a highly seccessful tool for many blind passengers. However, not every blind person feels comfortable in labeling himself in this way.

-3-

There are long-term plans to provide light indicators for the sighted passenger at these busy bus stops. The lights will indicate which bus is approaching and in which position it will arrive. As this system is being planned, there should be a comparable audible system for those passengers who can not see the lights. A sophisticated system of this sort should not be planned without providing equal accessibility to information to the blind and visually impaired.

ROUTE MAPS

Visually impaired passengers are unable to read route maps, which are often printed in fine, small print. We commend OC Transpo on their "Route Information Service" for visually impaired riders. This is an unlisted telephone number. The staff providing the information is patient and courteous, recognizing that a blind passenger may need extra information e.g. The location of a bus stop is a transfer point.

PERSONNEL

The majority of operators and administrative staff are considerate to the visually impaired passenger. However, there are sufficient complaints of rudeness or ignorance for us to recommend that sensitivity to the special needs of disabled passengers should be a part of the basic training for all transit personnel.

A large percentage of blind and visually impaired people in Ottawa are able to use the regular transit system. If their special needs can be recognized and met, their journeys could be less fearful and frustrating. However, there is still a minority of blind people, who will never be capable of using the regular transit system. Some of them are newly blind people, who have not yet learned sufficient mobility skills to enable them to travel independently. Others are too elderly to be able to deal with the fears and anxieties of traveling without vision. Others have a second handicap, developmental delay, which prevents them from learning the complex skill of traveling safely alone.

There must be a transportation system for these people to allow them independence and freedom to attend medical appointments, join in social activities or visit family and friends. Blind and visually impaired people of all ages and fitness levels should have the fundamental right to travel independently. Not one of these will be capable of driving their own vehicle and alternative methods must be found. We recommend that " alternative transit systems for the disabled" should be the next urgent issue addressed by the Ministry of Transportation and Communications.

DISABLED PERSONS' COMMUNITY RESOURCES
(DPCR)
formerly
REHABILITATION INSTITUTE OF OTTAWA
A voluntary organization concerned with the non-medical needs of the physically disabled

RESSOURCES COMMUNAUTAIRES POUR HANDICAPES
autrefois
INSTITUT DE RÉADAPTATION D'OTTAWA
Organisation bénévole visant les besoins non-médicaux des handicapés physiques

RESPONSE TO "FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT"

by The Committee for Urban Transportation for the Disabled
Disabled Persons' Community Resources
(DPCR)
formerly
Rehabilitation Institute of Ottawa (RIO)

The Committee for Urban Transportation for the Disabled (CUTD) was founded in 1971 in Ottawa to bring about accessible transportation for disabled people who could not use conventional transit services. This volunteer committee, composed of disabled and non-disabled persons has worked closely with OC Transpo by monitoring the door to door service "Para Transpo", and by acting as a link between the users and providers of the service.

The Committee has also been interested in the improvements made for accessibility to conventional transit and it endorses the initiatives now being undertaken by this Task Force. The Committee would like to emphasize its view, however, that a door to door transportation system will always be the most desirable way to transport those with mobility handicaps or problems of endurance such as are experienced by the frail elderly. No matter how accessible conventional transit is made, the problem of getting to a bus stop and waiting for a bus, expecially under harsh Canadian winter conditions, is beyond the ability of many elderly and disabled people. The CUTD therefore rejects the contention that a "significant number" of frail elderly and physically disabled persons not presently using conventional transit would become users if vehicles and buildings were made more accessible. The main problem is getting to and from the bus stops, and the endurance required. Another difficulty is the crowds of people encountered, especially at certain hours. The flow and movement of many rushing people is hard for disabled and elderly people to withstand. The experience in the cities of the U.S. where there is accessible conventional transit shows that it is not being utilized to the extent expected. While seeming excellent in principle, it is unrealistic in practice.

...../2

1400 Clyde, Suite 222, Nepean, Ontario, K2G 3J2 (613) 224-1522 (TDD)

United Way of Ottawa-Carleton Centraide Ottawa-Carleton

In reviewing the features to impove accessibility of conventional transit covered in the Task Force paper, it is noted that a number of items refer to a subway system and therefore are not applicable to Ottawa-Carleton. In general, OC Transpo has done a good job of adding features to its conventional buses to aid disabled people. However, some improvements could be made in the following:-

1) Courtesy Seating Signage - These signs over the front benches are small and obscure. Larger and clearer signs would make the public more aware of their significance.

2) Sensitivity Training - Although there are many courteous drivers on OC Transpo, some sensitivity training would make them more aware of the needs and problems of disabled people.

3) Bus Stops
   a) The location of bus stops/shelters should be looked at with a view to having them in convenient locations and as near as possible to the entrance of public buildings. Stops near the entrance enables passengers to wait and watch for buses in a warm sheltered place. An example of a poorly located bus shelter is the one at the Ottawa International Airport. It is situated on the street some distance from the main door and the arrival door where people who are returning from a flight, exit. If the bus stop was located near the main door, people would be able to remain inside in the warmth and comfort of the terminal until they saw the arrival of the bus, instead of having to walk a considerable distance and standing outside in an unheated shelter.

   b) Seats in bus shelters would be a great asset.

In conclusion , the CUTD believes that the door to door service is the best system for a large number of disabled and elderly people, and needs to expand to meet the growing demand. There is a need for more vehicles, for service on demand, and for broadening the eligibility criteria to include those blind people and the mentally handicapped who cannot use conventional transit on their own. Resources and energies should be directed to upgrading a door to door system which is now only partially filling the needs of handicapped people in the community.

Rae Finley,
Chairman,
Committee for Urban Transportation
for the Disabled (C.U.T.D.)

November 30, 1987

E.2.2. TORONTO PRESENTATIONS

HELD ON: December 2, 1987 - 1:30 p.m.

HELD AT: East Building Boardrooms 5 & 6
Ministry of Transportation
Downsview, Ontario

ATTENDANCE:

R. McEwen	Ministry of Transportation
M. English	Ministry of Transportation
R. Barnes	Ministry of Transportation
W. Mercer	Ministry of Transportation
A. Cormier	OUTA/CUTA
P. Venton	Office of Senior Citizens
R. Evans	St. Catharines Transit Commission
D. Mair	Toronto Transit Commission
G. Johnston	GO Transit
T. Beatson	Oakville Transit
D. Ridley	Sudbury Transit
W. O'Brien	Delcan
B. Potter	Action Awareness
C. McPherson	PUSH Ontario
E. Snyder	PUSH Ontario
H. Fields	Ontario Coalition for Senior Citizens
L. McQuillam	Centre for Independant Living
J. Beattie	Canadian Hearing Society
B. Constable	North York Senior Citizens Centre
M. Bennett	North York Senior Citizens Centre
C. Leleeuw	Ontario Coalition for Senior Citizens
J. Schurer	PUSH - Central Region
A. Moore	Ontario Advisory Council for Disabled Persons and Senior Citizens
W. Beauchamp	CNIB

ITEMS OF DISCUSSION:

1. Mr. Roy McEwen opened the meeting and introduced participants. He outlined the background to the Task Force which was formed by the Minister of Transportation in early 1987. Prior to 1987, the main work on accessibility to public transit was a study (TACIA) by TTC in 1979-80. Since then there have been some specific initiatives by certain transit operators to improve accessibility.

2. The Task Force terms of reference were outlined in detail by Mr. McEwen. He noted that the terms of reference do not include addressing the issue of full accessibility.

3. Presentations

3.1 Cathy McPherson of PUSH Ontario made a presentation which highlighted the following points:

- Equal opportunity to accessibility is a major area of concern.
- She noted the Memorandum of Agreement presented to the government earlier in 1987.
- Theme is a strong financial argument for changes.
- She noted the concerns related to volunteer services.
- Women with disabilities are susceptible to assault.
- They support increased taxi accessibility.
- She noted concerns about lack of coordination at municipal boundaries.
- She advocates a combined system of public transit and accessible taxis. This should include buses with retractable steps and kneeling feature.
- All funded services should be accessible.

She presented a story based on real situations which outlined some mobility problems faced by disabled persons.

A copy of her presentation is attached.

3.2 Evelyn Snyder - PUSH Ontario

Ms. Snyder described some of the problems encountered in using parallel services and the general unreliability and inadequacy of these services. She noted that this impacts the ability of users to maintain their employment.

3.3 Beryl Potter - Action Awareness

Ms. Potter discussed the important of accessibility issues and the initiative being undertaken. She noted her current discussions with GO Transit regarding features to improve accessibility. One area of importance is driver training and she commented on the value of new training tools being developed by CUTA.

3.4 Harry Fields - Ontario Coalition for Senior Citizens

Mr. Fields noted his support for the Task Force's efforts and said that he hopes something will get done. He emphasized the changing demographic conditions and growing senior population. Mr. Fields also noted some problems related to the uncertainties of service on parallel systems.

3.5 Discussion and Comments

- Mr. Cormier noted recent CUTA initiatives in areas of driver training and information disseminations. He also indicated that an issue for operators is funding constraints.
- Mr. Evans noted that he is primarily concerned with obtaining input on improvements to conventional transit as a Task Force member.
- The Ottawa courtesy cord system was discussed and received general support. It was noted that courtesy cords should be optional features.

4. Findings to Date

W. O'Brien reviewed the general activities conducted to date and the ongoing evaluation process.

5. Additional Comments

Other general comments covered the following points:

- Mr. Mair noted that provision of improved services is still a transit operating budget problem.
- Mr. Evans indicated his concern about impacts on bus schedules and operating cost implications.

- Ms. Beauchamp noted problems faced by the blind and the need for signs to be at eye level and for improved lighting.
- Mrs. Potter advised that simplified signs and symbols should be considered for mentally handicapped.
- It was noted that electronic message boards should be considered for deaf people.

6. Closing Remarks

Mr. McEwen thanked participants for their attendance and input. He noted that further evaluation work will be required prior to preparing the Task Force Report.

Minutes prepared by:

W.B. O'Brien, P.Eng.

WBO:kmg/WBO.011

encl.

PRESENTATION TO THE TASK FORCE ON IMPROVED ACCESSIBILITY OF CONVENTIONAL TRANSIT SYSTEMS

BY PUSH ONTARIO

Dec. 2, 1987

Since the inception of our organization in 1981, equal access to transportation has been one of the most important issues of concern identified by our members across the province, year after year on a regional and provincial basis.

It continues to be a major barrier in preventing persons with disabilities from working and living independently in the community, effectively barring disabled people from equal opportunities in our society.

We compliment this government for taking this issue seriously enough to ask for consumer input into some of the proposed changes in this area, which we understand are imminent. The following are some of the general issues that have been raised by our organization on transportation and more specifically on this subject.

Before we outline some of our concerns in this area, however, we wish to reiterate our organization's solid committment to the Memorandum of Agreement drafted by Trans-Action (our president is co-chair of this group) and presented to the Ministry of Transportation earlier this year, which recommends a timetable for changing the transportation system to make it more accessible to the disabled and elderly in this province.

We believe there is a strong financial argument in favour of acting on such a document. Persons with disabilities and the elderly have contributed their taxes to the development of our transportation system - we know that this population will be increasing in the next decade as baby boomers get older - it makes fiscal and social sense that transportation systems should accommodate these two segments of our population.

But at the same time disabled persons and the elderly are paying taxes to use our transportation system, they are unable to access the conventional services and are forced to pay high additional costs to travel in their areas. This places an unfair financial burden on the shoulders of a population the majority of whom are already living below the poverty level.

We are pleased and proud that we have had the opportunity to be part of the drafting of this paper which lays the groundwork for creating an equal transportation system for the disabled and elderly in this province. We urge this government to committ itself fully to the points raised in this important document.

We also wish to compliment the Ontario Advisory Council on the Physically Handicapped and the Ontario Advisory Council on Senior Citizens for their excellent joint publication "The Freedom to Move is Life Itself". On the issue of volunteer-run accessible transportation, however, we must disagree with the general thrust of this report.

There is no question that volunteer-run and operated vehicles have been of tremendous assistance to persons with disabilities in the past where nothing else is available, and will continue to do so in the future.

Many volunteers are happy to give disabled consumers rides to see their doctors and in some cases, transportation to hold down jobs or go to school. We receive many complaints by disabled consumers, however, about the hours of these services and the type of criteria they use in accommodating disabled consumers in their communities.

There is little or no recognition of the importance of the social lives of persons with disabilities. Volunteers are reluctant to accommodate disabled consumers who wish to go to a movie, go shopping, to a party, or to a friend's place for socializing and are not flexible enough to accommodate late evening/morning returns from these engagements. In small towns or rural areas there is a high degree of moral judgement involved in deciding whether disabled consumers should be accommodated.

No other citizens in our society are subject to this harsh criteria - why must persons with disabilities justify that their reasons are "morally correct" before they are allowed access to transportation?

On a more serious note, women with disabilities who are victims of assault, and have limited mobility requiring the use of electric wheelchairs find it next to impossible to flee from their assailants under the present system. Where a non-disabled woman may call a taxi, a woman who uses an electric wheelchair may find herself trapped in a destructive relationship and unable to go to a shelter for abused women, because of the lack of accessible transportation.

All of the above points support the argument for accessible taxis and other forms of alternative transportation for persons with disabilities in this province - at the same fare cost as a non-disabled person would pay - where accessible conventional and parallel systems cannot immediately be established.

The issue of equality is one that is raised whenever the issue of transportation comes up among persons with disabilities. In many communities in this province, persons with disabilities must pay more to travel in the community's parallel transportation system than a non-disabled person does on the conventional system. Some persons with disabilities are required to travel with attendants - they are being charged for the cost of taking that attendant with them in some communities.

Our organization fought for the right to have attendants travel for free when accompanying a person with a disability on airplanes, buses and trains in this country. The same principle applies to persons with disabilities travelling on provincial transportation systems in Ontario. Attendants are extensions of the disabled individual, without which, in many cases, they could not survive. Attendants should not be charged a fare when accompanying a disabled person.

Considering the precarious financial position of many disabled and elderly people in this province it is criminal to expect these people to pay more for transportation than the rest of the public or to buy their own vehicles.

Other issues which have been raised in the past by our organization to this government on the transporation issue have included:

a) concerns around lack of co-ordination of parallel transportation between boundaries resulting in disabled people being unable to get to airports in their communities through these systems;

b) criteria of parallel transportation usage is often based on being unable to board conventional systems (ie. mobility disabilities). Persons with other types of disabilities such as developmental handicaps, epilepsy, blindness, etc. are often not eligible to use these systems;

c) subscription services in some parallel services are based on full-time employment. Persons with disabilities who hold down part-time jobs which better accommodate their attendant care needs or fatigue problems related to their disability are not eligible for such service;

d) parallel transportation services are being used in medical emergencies where the use of ambulances would be more appropriate;

e) parallel transportation systems in some centres are being inappropriately used or underused through lack of basic publicity to potential users (in nursing homes, group homes, etc.);

f) persons with disabilities are expected to put up with substandard safety conditions on parallel services and poor driver training;

g) parallel transportation systems are underfunded and do not provide a truly equal transportation system for the disabled.

The answer is clearly a combined system - one that allows for door-to-door service for those who need it, as well as accessibility in mainstream transportation systems, complimented with accessible privately owned systems which charge fare rates that are the same as those charged to the general public.

In some cases this system could be provided at relatively little expense - many buses now purchased for conventional use are capable of "kneeling" to allow disabled or elderly persons mount the steps easily; a number of buses have been equipped for a minimal amount of money with retractable lower steps for the same reason.

$200/bus

The provincial and federal governments should be providing subsidies to allow accessible taxis and inter-city buses to be put into service throughout Ontario as they have been in other parts of Canada and the world. These services are particularly needed in the rural areas where virtually no accessible conventional or parallel transportation systems presently exist.

In the long-term, no new transportation systems should be funded by any level of government without accessibility features being built in to allow equal access by persons with disabilities.

In the meantime we believe that conventional public transportation systems must be retrofitted over a number of years to accommodate the needs of persons with disabilities.

We urge this government to acknowledge the importance of all of these vital components in making our transportation system accessible to persons with disabilities in this province by signing the Memorandum of Agreement and by budgetting for the funds to make the fulfillment of the Agreement possible.

* * * * *

The following is a composite story based on the true experiences of the members of our organization. These people represent the most independent disabled consumers in their communities - other disabled consumers faced with the same set of obstacles no longer participate to the same extent that these consumers do and spend most of their time in isolated in their homes and institutions.

* * * * * * * *

Judy, Fran and Thomas have to be at a municipal meeting by 9 a.m.

Judy, uses an electric wheelchair, so she must order parellel transportation ahead of time. If she is more than five minutes late when the bus arrives, it is ordered to leave without her. If the bus arrives an hour late, however, Judy has no recourse but to wait. When she arrives at her destination she has to remind the driver to pick her up because they often forget to return to pick up the passenger.

Fran lives 21 miles outside of the city and for this meeting her husband is working the midnight shift, so he cannot drive her to the meeting. As they can only afford one car and she cannot drive, she will use the neighborhood "shuttle". She is up at 5:30 a.m. and has her family ready for the school bus at 7:00 a.m. She hitches a ride on the school bus to a neighbor's place a mile away.

The neighbor drops her off at her mother's home. Although she has trouble boarding a regular bus because polio has made it difficult for her to walk, she does not qualify for the handi-transit system, so her mother drives her to the meeting.

Thomas is blind and uses a seeing eye dog. He doesn't qualify for the handi-transit and although he is not refused on the regular bus system, he gets all kinds of arguments about bringing a dog on board. He would prefer to use taxis but on his pension cannot afford many so this limits his attendance at meetings.

At city hall where the meeting is being held, they run into Sue and Bob, both disabled, who work there. Sue has epilepsy. She considers herself lucky to have a job because of the severity of her seizures. Her husband, who is disabled himself, takes her to work and back home again every day on the conventional transportation system because she doesn't qualify for parallel transportation and they are afraid she will fall and hurt herself while taking the subway alone.

Bob was once very physically strong even though he used a wheelchair. In his twenties he got into the subway system by grabbing on to the sides of the escalator and through sheer physical strength holding his chair on the escalators going up or down. Since those days, he has lost much of his physical strength through a deteriorating muscular disorder and is unwilling to risk serious injury to himself by continuing to ride in this fashion in the subway system, even though the system is cheaper and more reliable than the parallel transportation system.

He now works part-time but is considering quitting his job because of the unreliable nature of the handi-transit system. He cannot drive a car because he has so little muscle strength. His boss is becoming increasingly frustrated because every other day parallel system operators inform Bob they are unable to give him a ride either to or from his job because of the demand for the service. They tell Bob he shouldn't be working at all if he has to work part-time. Bob, on the other hand enjoys working and feels that his job gives him a tremendous sense of self-worth even though he doesn't earn much more than he would get from disability pension.

In the afternoon, Judy and Fran have to go out of town to attend a regional board meeting. Although Fran didn't meet the criteria to go on the handi-transit system, she can now travel on the bus as Judy's attendant and pay the regular fare!

Luckily the train goes to the town where the meeting is taking place otherwise they would have to charter a van to go to it at great cost. At the train station where tickets for persons with disabilities must be ordered at least 10 days in advance, they run into a problem. Judy needs a lift to get on the train but the train people will not guarantee there will be a lift when they arrive at their destination. It has been ordered two weeks before but as there are only nine lifts in large centres across the province, Via Rail will only borrow one if there are are a minimum of three users on the train. They decide to risk it.

At their destination there is no handi-transit so friends borrow a van and meet Fran and Judy to deliver them to the meeting.

At 6:00 p.m. Fran and Judy reboard the train with a lot of consternation from the VIA staff. Judy leaves the train at their original departure point, but Fran goes on to Toronto for a provincial board meeting. She has to ask for a wheelchair and lift to be waiting in Toronto as her heart condition doesn't allow for the exertion of walking the huge Union Station and her legs can't handle the steps on the train.

When she arrives, they have a lift but no chair (which is a change from the week before when they had the chair but no lift!). After some delay she is off the train thanks to the assistance of the red caps (who are being phased out). She tries to get a cab by herself but the taxi driver sees her in the wheelchair and passes her by. The red cap finally flags one down and the driver is pleased to see her leave her wheelchair behind with VIA.

The next day Fran goes with June (another wheelchair user) to the Pearson Airport to fly to another city for a COPOH meeting. They pay $100.00 to a private van operator get to them to the airport because no parallel transportation system will take them there quickly (they could spend several hours to make connections between parallel systems to get there).

At the ticket desk Fran doesn't look disabled enough to the ticket agent so there is quite a bit of dialogue before staff is convinced that Fran needs a wheelchair and assistance to board. Once she is in the chair a number of staff enroute question her ability to travel alone but she convinces them she knows her limits and points out the Adela case as proof she has the right to make that decision.

Finally arriving at their destination, Fran and June review the struggles that they face on their return trip and wonder if the barriers they meet are going to be the final straw in making them drop out of community participation.

Little do they know that on the way back the airline pilot will refuse to allow June to board the plane for "safety reasons" forcing her to spend an extra night in the city so she can catch another plane with a more sympathetic pilot the next day!

ACTION AWARENESS
advocacy centre for disabled persons and their families inc.

4695 Sheppard Ave. E.
Suite 110
SCARBOROUGH, M1S 4R2
(416) 298-8689

TASK FORCE ON IMPROVED ACCESSIBILITY OF CONVENTIONAL TRANSIT SERVICES

December 2, 1987

Mr. McEwen, I first want to thank you for including persons with disabilities in your plans for making the Conventional Transit Service more accessible to frail and ambulatory passengers. I am sure this must be one of your most pleasant tasks, when you can share the Ministry of Transportation plans on such a positive note.

I do not have a written presentation here today, as I believe I covered all possible aspects of accessibility for seniors, and ambulatory persons with disabilities when I spent the morning with Glen Johntson from GO Transit a number of weeks ago, going over, and prioritorizing a long list of recommendations for this very issue. I doubt if we left anything uncovered.

I am not sure whether you are aware of these recommendations or not, but I am sure Glen Johnston would be happy to provide you with a copy.

I understand that, when you are speaking about access, your are referring to senior citizens - persons with disabilities who are ambulatory - mentally retarded etc. and the necessity for low steps, rest areas, hand bars, courtesy seating, simplified signage, plus audio and visual equipment for person with sensory impairment. (hopefully, this will also include driver training and or the need to sensitize them,especially regarding the courtesy seating and sensory equipment) .

However, while I think this is a tremendous step forward on behalf of the government, and that their intention is to address these immediate barriers. I must point out that many senior citizens, persons with sensory impairments, and mental retardation are also in wheelchairs, and should not be discriminated against under the Charter of Rights and Freedoms.

Therefore, I cannot honestly support this programme, unless the eventual implementation of TOTAL accessibility for all persons of Ontario are kept in mind at all times when necessary reconstruction takes place.

Thank you

Beryl Potter
Chairperson.

ONTARIO RESPIRATORY CARE SOCIETY
A section of the Ontario Lung Association

573 King Street East
Toronto, Ontario M5A 1M5
Tel.: (416) 864-1112

November 25, 1987

Mr. Roy B. McEwen, Chairman
IACTS Task Force
Ministry of Transporation
and Communications
3rd Floor, West Tower
1201 Wilson Avenue
Downsview, Ontario M3M 1J8

Dear Mr. McEwen:

Thank you for your invitation to the meeting scheduled by the Task Force on December 2, 1987.

I believe our communication with you demonstrated our concerns for the population we serve. We will not be able to have a representative available for the December 2nd meeting.

We appreciate your attention to the issues of concern voiced by those whose disabilities make travel difficult. Please let us know if there is any further way we can be of service.

Sincerely

Esther F Mitchell av

Esther F. Mitchell, MA
Coordinator

EFM:av

EPILEPSY ASSOCIATION, METRO TORONTO

A Participant
in the United Way

80 Richmond Street West, Suite 804
Toronto, Ontario M5H 2A4
Telephone (416) 363-4011

ADVISORS

Joseph Bruni, M.D.
W. McIntyre Burnham
Rosalind Curtis, M.D.

November 26, 1987

Ministry of Transportation
& Communications
Transit Office

Attn: Mr. R.B. McEwen,
Chairman
IACTS Task Force.

Dear Mr. McEwen:

Thankyou for your invitation to attend The Fask Force meeting to review accessibility of conventional transit.

Most people with epilepsy do not have a problem using conventional public transit, and the existing system is quite adequate.

The problems begins when a person has multiple seizures which seriously increase the risk of injury from falling down concrete stairs or in front of a subway car. There is even a risk for some in getting from their home to a bus stop.

Our major concern is with the Wheel Trans policy which makes it difficult for people with epilepsy to qualify for their services.

We believe that the Ministry should be looking closely at Wheel Trans policy as it affects people with epilepsy and I would be very pleased to have the opportunity of meeting with Mr. Fulton or yourself to discuss this issue further.

Yours sincerely,

John Ellis

John Ellis
Executive Director.

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E.2.3 LONDON PRESENTATIONS

HELD ON: December 3, 1987 - 10:00 a.m.

HELD AT: Commission Boardroom
London Transit Commission
450 Highbury Avenue
London, Ontario

ATTENDANCE:

R. McEwen	Ministry of Transportation
M. English	Ministry of Transportation
R. Barnes	Ministry of Transportation
M. Harmelink	Ministry of Transportation
Mr. D. Smith	Ministry of Transportation
A. Cormier	OUTA/CUTA
P. Venton	Office of Senior Citizens
R. Coghill	Transit Windsor
W. Smith	Hamilton Street Railway
B. Clark	Canadian Council of the Blind
W. O'Brien	Delcan
G. Arblaster	London Transit Commission
H. Quesnel	PUSH Southwestern Region
B. Quesnel	PUSH Southwestern Region
J. Dolittle	PUSH Southwestern Region
M. Chalmers	Ontario Advisory Council

ITEMS OF DISCUSSION:

1. Mr. Roy McEwen opened the meeting and introduced participants. He outlined the background to the Task Force which was formed by the Minister of Transportation in early 1987. Prior to 1987, the main work on accessibility to public transit was a study (TACIA) by TTC in 1979-80. Since then there have been some specific initiatives by certain transit operators to improve accessibility.

2. The Task Force terms of reference were outlined in detail by Mr. McEwen. He noted that the terms of reference do not include addressing the issue of full accessibility.

3. Presentations

3.1 Mr. Bruce - Clark Canadian Council of the Blind

Mr. Clark noted that at the time of submission of his brief, he was not a member of the Task Force. However he has since been appointed to the Task Force. Specific points noted by Mr. Clark were as follows:

- He noted cooperation blind people have had with transit authorities. He noted reliance on conventional urban transit by blind people although a small number of blind persons do need parallel service.

- Bus Stops Comments:

  Bus stop poles should be in bold, contracting colour. Boxes on poles, which project beyond the pole, are a problem for the blind. Where possible bus stops should be associated with a curb. Bus stop curb should be contrasting colour.

- Bus Shelters
  - Need consistency in design and placement of doorway on bus shelters.
  - Bus shelters with glass panels need a bright horizontal contrasting strip. Also, doorways should be marked vertically with bold strips.
  - Newspaper boxes, garbage bins, etc. should be well clear of shelter doorway.
  - Need ample sidewalk clearance for safe movement.

- Vehicles
  - Bus route signage numbers should be large, bold, well separated, all day backlighting.
  - Bus route signage at the side of bus should be lower to facilitate reading.

- Not concerned with door opening.
- Need contrasting colour strips on bus steps, on both horizontal and vertical surface. Also needed at rear doors.
- At rear doorway need well-lighting for stairs. Also would be helpful if light projected on to sidewalk at bus exit.
- Interior "blue" lighting in some buses is inadequate at night. Lights, in courtesy seating area, should be brighter.
- Pull cords should be a contrasting colour. Also, it should have a bell signal. Interior bus stop light is helpful.
- Poles are adequate but should be a bright reflective colour (not black).
- Courtesy seating is required by some blind people and is preferred on the side opposite the driver for improved communication with driver. The symbol of access should be applied to the back of the seat to increase passenger awareness.
- Fare boxes should be out of passageway.

. Buildings and Facilities

- Many features are currently in use but signage is still an issue.
- Signage needs to be large, contrasting colour, eye level, in a readable location. Where possible sign lettering should be raised.
- Elevators are helpful but controls should be low, in braille, in contrasting colours, etc.

- Stair risers and treads need to be marked by contrasting colour. Wide stairs need a centre handrail, extending above and below the stair. The handrail profile should follow stair profile.

. Subway Stations

- Edge of subway platform should be clearly marked and different surface texture.
- Telephone booths not extending to the floor are a problem.
- Station lettering needs to be at least 1 foot high.
- Would be helpful if subway stops were announced. Suggests recorded message should be used, both on the cars and in the stations.

. Service Delivery

- Operating staff need to be trained to increase awareness.
- Ottawa's hailing system works well and should be used in other cities.
- Drivers should wait longer for persons boarding to seat themselves.

. Economic Concession

- Free access to transit for blind people is very critical and avoids needs for parallel service. Would like to see this endorsed by Task Force.
- Procedures should be consistent from city to city. Some people do not belong to CNIB and would like to get passes from transit property. Use in other cities is desireable.

- Closing

  - Important that the issues be addressed and resolved at the local level to be most meaningful. Local transit commissions should have a regular forum for consumer input.

  - Marketing needs to be ongoing. Ministry should publish newsletter regularly, dedicated to accessibility issues. Special phone number for blind and visually impaired persons would be helpful.

- Questions and Answers

  - Bill Smith commented that blue light cuts down on glare for operator at night. Also, he noted some concerns with administering a province-wide pass.

  - Bruce noted that passes should be renewed regularly.

  - Bob Coghill noted that there are some good suggestions which have not been previously brought forward. Also each municipality has some unique considerations.

  - Rob Barnes asked about training to assist users. Bruce noted that CNIB does training. Also, Bruce noted that they do not feel attendants are required for transit travel.

  - On the question of bus shelter door location, Bruce suggested the opening should face the street as long as adequate sidewalk space is available.

3.2 Mr. Murray Chalmers - Ontario Advisory Council

Mr. Chalmers referred to publication "The Freedom to Move is Life Itself" and general support for that report. A key point is that the right to move about is a basic right. The report presents short, medium and long term recommendations. Some specific features noted are as follows:

- Research on bus design in important.
- Signing on buses is very important for seniors. Signs on sides and back should be easier to read.
- Steps getting into buses are too high. A retractable step might be helpful.
- Not allowing elderly to get seated before starting the bus is a problem.
- Elderly find it difficult to get into buses without orderly queuing for the bus.
- Discussed problems related to municipal boundary constraints.
- Noted 80+ age criteria for driver examination is discriminatory.
- Volunteer drivers are becoming less available due to insurance concerns.
- Should be some consideration of using school buses during mid-day in rural areas for transportation to elderly people.
- Attitude changes are important and should be addressed.
- Questions and Discussion
  - Economic aspects of improved mobility were discussed.
  - Lack of driver assistance may be largely due to attitudes and may be overcome by training.

3.3 Other Comments:

- Ms. Quesnel noted support for the need for specific features on buses as previously outlined.

- Mr. Chalmers noted the use of accessible taxis in Calgary for elderly and disabled.
- Mr. John Dolittle noted the problems of using paratransit service to the airport due to municipal boundaries. He expressed his support for the Task Force obtaining user inputs.

4. W. O'Brien provided an overview of findings to date and further steps to be carried out in evaluating suggested features.

5. Additional Comments

   - The system in Ottawa with a bylaw regarding courtesy seating was discussed.

6. The meeting was adjourned at 12:15 p.m.

Minutes prepared by:

W.B. O'Brien, P.Eng.

WBO:kmg/WBO.010

ISSUES CONCERNING ACCESSIBILITY FOR THE BLIND AND VISUALLY IMPAIRED TO CONVENTIONAL URBAN TRANSIT SYSTEMS

Prepared by

THE CANADIAN COUNCIL OF THE BLIND
510 - 220 Dundas St.
London, Ontario
N6A 1H3

September 1987

Bruce R. Clark
Executive Director

ISSUES CONCERNING ACCESSIBILITY FOR THE BLIND AND VISUALLY IMPAIRED TO CONVENTIONAL URBAN TRANSIT SYSTEMS

The majority of the blind and visually impaired population possess sufficient mobility skills to enable them to travel relatively independently within a familiar urban environment. Because of the nature of their disability most blind and visually impaired persons depend heavily on traditional public urban transit systems in order to travel within their community. In order to promote the full independence of the blind and to assist them in their daily living it is important that operators of conventional urban transit systems be aware of specific needs of this segment of the disabled population.

Most of the issues concerning accessibility for the blind and visually impaired to conventional urban transit systems center around minor obstacles in terms of equipment design, service provision and economic access. Most of these obstacles can be resolved relatively inexpensively and with little effort. Indeed, a general awareness of the issues themselves on the part of designers and operating personnel can enable major changes that seriously address need.

The comments listed below are intended to briefly identify major issues and to suggest reasonable remedies. By no means do these comments address any given subject area thoroughly. Further details can be provided upon request.

EQUIPMENT

Bus Stops and Terminal Points

Bus Shelters

Blind persons have not experienced difficulty with transit shelters until recently. A new and common design involving panels of clear glass has created serious safety issues. It is customary that in order to indicate the location of glass panels that a horizontal stripe is placed on the glass. This stripe should be in a brightly contrasting colour such as white or yellow. A stripe in orange, red or black does not provide sufficient contrast for recognition by the visually impaired. Further, a vertical stripe should be placed on the edge of glass panels closest to the entrance of the shelter in order to clearly identify it. Tinted glass should be avoided as it does not enable the visually impaired to see out of the shelter.

Placement of bus shelters should be consistent. The entrance to the bus shelter should always face toward the sidewalk and the placement of the entrance should be consistent with all shelter designs. Also, obstacles such as newspaper boxes or garbage containers should not be placed on the front side of shelters.

Bus Stop Signs

The type of pole or support structure used for bus stop signs can create a hazard. The pole or support structure should be of uniform width so as to be easily recognized with a white cane. Signs or sign boxes should not be placed so as to protrude from the pole or support as this can cause injury to a blind person. It is helpful if the bus stop pole or support structure is painted in a bright contrasting colour significantly different from other sign poles in the community. All bus stop poles should be painted a uniform colour for easy recognition.

Lettering and signage is critical. The letters indicating the bus stop designation should be bold and in large print. The print should be in a contrasting colour from the sign background. The sign must be placed low enough for reading at eye level without creating a hazard.

In urban areas where the center core or downtown development is used as a bus terminal point where several buses might use a single stop, signage should clearly indicate all routes that use a particular stop. Ideally, urban transit systems should consider using "talking" bus stop signs as used in parts of Europe. Further information on "talking" signs is available on request.

Curbs

In order to protect the safety of blind and visually impaired travellers, bus stop locations, wherever possible, should be associated with a clearly identified curb. Further, it is helpful if the edge of this curb is painted in a bright contrasting colour. Bus stops located where there is no curb present a serious hazard as a blind traveller cannot be certain where to safely stand to wait for the bus.

Vehicles

Doorways

Vehicle doorways should be sufficiently wide to provide easy access. The edging of doorways when in the open position should be marked in a contrasting colour. Doorway edges when in the open position should not protrude excessively.

Stairs

The edging of vehicle stairs should be marked with a brightly coloured stripe both on the stair riser and tread. All stairways should be well lit when vehicle doors open and railings should be placed on both sides of the stairway and should extend slightly beyond the step itself.

Fare Boxes

Bus fare boxes should be placed so as not to create a hazard for blind passengers boarding the bus. The edging of the fare box should be marked in a contrasting colour for easy identification. It is also helpful if the edging of the actual opening where tickets and coins are placed is marked in a contrasting colour.

Seating

In most commonly used buses, the bench seating immediately inside the front door is designated for disabled passengers. The signage indicating this designation should be large enough as to be seen by all passengers. To ensure that this seating is left for disabled and elderly passengers small wheelchair symbols can be attractively placed on seat backs for easier recognition by the general public.

To assist with the easy identification of seat location and available seating, seat coverings should be of a bright contrasting colour.

Hand Rails

Black or dark vinyl hand railings should be avoided as they cannot be easily seen by the visually impaired. It is preferable that hand railings be of a bright metal or a bright colour for easy recognition.

Pull Cords

It is helpful if the pull cord used to inform the bus driver of a next stop request are of a bright contrasting colour for easy location identification.

Signage

Exterior signs indicating routes and bus designations (traditionally placed over the windshield) should be of large clear lettering. Often white lettering on a black background is most easily recognized. It is helpful if the route number is very large as most passengers recognize buses by route numbers rather than route names.

It is common practice that a route sign also appears at the upper left of the front doorway of the side panel of the vehicle. It would be helpful if the location of this sign were lowered to eye level in line with the bottom of window panels. By placing the sign in this location a visually impaired person could easily identify the bus designation prior to boarding.

BUILDINGS

Stairways

All stairways should be accompanied with hand rails that extend beyond the top and bottom of the stairs themselves enabling blind and visually impaired individuals to recognize plateaus. Textured floors should be used at the top and bottom of the stairway. Each stair should be marked with a stripe in a contrasting colour on both the riser and the tread.

In cases where a center railing is used in conjunction with a wide stairway, this center railing should also extend beyond the bottom and top of the stairway. All railings should be in a contrasting colour for easy identification.

Doorways

Revolving doors and modern quarter hinged doors should be avoided at all times. Textured floor materials should surround the doorway for easy recognition of the potential barrier. Door handles should be in a contrasting colour for easy identification. Glass doorways should be marked in a contrasting colour to avoid visual confusion.

Under no circumstances should doorways be propped open in such a way as to cause a hazard for the sightless. If it is necessary for a door to remain open it should be capable of swinging back far enough so as not to protrude.

Signage

All signage should be in large bold print and provide excellent contrast. Raised lettering is also of help for the totally blind. Signs should be placed at eye level rather than above doorways or stairways. Under no conditions should a sign be placed on a working door as this could present a serious hazard. It is important that sign locations provide sufficient safety for a visually impaired person to stand stationary to read the sign and sufficient clearance must be permitted for a person to stand close to the sign for reading at eye level.

In places where international symbols are used these symbols should be large and in a contrasting colour. Raised symbols can also be used to assist the blind.

Lighting

It is essential that all building areas be lit well with even lighting that does not create glare conditions. Of particular concern is lighting in bus tunnels and subway platforms

Automated Entrances

Purely automated entrances should be avoided as they do not permit access for blind persons using a transit pass. Where it is necessary to place entirely automated entrances every effort should be made to properly sign these entrances indicating that they are fully automated. Also, every effort should be made to advise disabled passengers that this may not be the most appropriate entrance for their use.

Subway Platforms

At the design stage, care should be taken that the subway platforms are sufficiently wide for the proper safety of all passengers. Textured floor tiling should be used as a wide boarder at the edge of the platform to provide warning. This textured boarder should also be in a contrasting colour for easy identification.

Subway platforms that are heavily congested should provide some sort of barrier or railing to indicate danger areas. This railing could include intermittent breaks in order to allow passenger access to trains.

Items such as public telephones, garbage containers and newspaper boxes should be placed well away from traffic areas. With regard to public telephones, enclosures that do not completely meet the floor but hang from the wall cause a danger for white cane users.

Subway Station Identification

It is helpful if each subway train station is of a significantly different colour for easy identification for the visually impaired. The name of each station should appear in lettering of at least 1 foot in height. This lettering should be placed on the station wall at eye level. Similarly coloured stations should be avoided as this can create confusion.

SERVICE ISSUES

Awareness Training

All transit employees who have responsibility for direct interaction with passengers should receive training to raise awareness of the needs of the disabled and elderly passengers. This training should include information on the major disability groups as well as practical direction on appropriate assistance for these groups.

While many needs can be resolved through modifications in equipment design and building structure, it is only through effective awareness training that the major and less easily resolved attitudinal barriers can be directly confronted.

Public Address Systems

Many modern subway systems are equipped with internal vehicle public address systems. For reasons mostly associated with public response, these systems are not used to announce station stops. For the blind and visually impaired, the announcement of station stops would provide a dramatic and meaningful solution to station identification problems. Transit authorities should be encouraged to utilize public address systems in this way and should find a suitable methodology that is not offensive or annoying to the general public.

Information Access

A need exists for disabled and elderly passengers to access information that is specific to their needs. In large centers a telephone information service should be established that is specifically designed for the disabled and elderly. This service should be capable of providing detailed information concerning bus stop locations, visual cues for stop identification, specialized service availability and specific route information. Personnel staffing this service should be specifically trained in order that they are aware of the unique needs of special passengers.

ECONOMIC ACCESS

It has long been traditional in major centers that blind and visually impaired passengers have free access to conventional urban transit systems. This access is based on the recognition that blind and visually impaired persons rarely have alternate transit available to them. The continuation and protection of this important concession for the blind and visually impaired allows for economic access that is essential to their continued independence and integration in their community.

Some centers in Canada have now adopted the CNIB National Identification Card as the accepted transit pass for blind persons. We encourage other centers to consider the adoption of this policy as it provides a uniform system that does allow occasional access for visitors that are not residents of a given city. While this does create some difficulties in monitoring cost effectiveness of the program, we believe that occurrences of a non-resident using a given transit system are rare and do not directly interfere with the normal concession being offered by transit authorities to blind and visually impaired residents

E.2.4 SUDBURY PRESENTATIONS

HELD ON: December 14, 1987 - 10:30 a.m.

HELD AT: Council Chambers
Civic Square
200 Brady Street
Sudbury, Ontario

ATTENDANCE:

R. McEwen	Ministry of Transportation
M. English	Ministry of Transportation
K. Moore	Ministry of Transportation
D. Ridley	Sudbury Transit
B. Clark	C.N.I.B.
W. Roberts	Delcan
A. Cormier	OUTA/CUTA
C. Osborne	Crusader's Handi-Transit
J. Ewen	PUSH
R. Beland	PUSH
R. Miles	HAGI
V. Shuttleworth	March of Dimes
D. Sargent	Consumer
P. Crowther	CNIB - Ontario District
D. McDonald	Wayne's Taxi
W. Gabrych	Consumer
S. Gallivan-Hamel	Muscular Dystrophy
D. Steele	Association for Community Living

ITEMS OF DISCUSSION:

1. Mr. Roy McEwen opened the meeting and introduced participants. He outlined the background to the Task Force which was formed by the Minister of Transportation in early 1987. Prior to 1987, the main work on accessibility to public transit was a study (TACIA) by TTC in 1979-80. Since then there have been some specific initiatives by certain transit operators to improve accessibility.

2. The Task Force terms of reference were outlined in detail by Mr. McEwen. He noted that the terms of reference do not include addressing the issue of full accessibility.

3. Presentations

3.1 Ozzie Osbourne - Crusader's Hand-Transit

Mr. Osbourne highlighted some of the features which will help to improve accessibility. Features mentioned were:

- Driver Training
- Public Address System
- Lowering signs to eye level
- Bright contrasting colour strip on steps

3.2 June Ewen - PUSH

Ms. Ewen made a presentation which highlighted the following points:

- She noted that Sudbury has many accessible buildings the problem is people can't get to them.
- She noted her concern over the lack of parallel services to the Sudbury airport.
- She noted the problem of getting to the buses in rural areas.
- She advocates a combined system of public tranist and accessible taxes.
- She indicated that snow removal and sensitivity training were major areas of concern.

3.3 Rick Miles - HAGI

Mr. Miles noted his concern that a fully accessible transit system will not address the needs of passengers who cannot reach the transit vehicles. He mentioned that HAGI will support the task force actions so long as the costs do not distract from additional resources required to operate parallel transit.

3.4 Patrick Crowther - CNIB

Mr. Crowther noted some of the major problems encountered by the CNIB. Problems mentioned were as follows:

- getting to the bus stop.
- lack of snow removal.
- getting off the bus.

He noted some solutions to the above problems. Solutions mentioned were as follows:

- educated general public, drivers and transit staff.
- set up a door to bus stop service.
- install "talking" bus stops.
- large print on all signs.

3.5 Discussion and Comments

B. Clark asked for any ideas on how the task force should communicate the accessibility issues to the various groups. There was no response.

B. Clark mentioned the ideas he discussed in his London presentation. The key points were:

- Marketing needs to be on-going.
- Ministry should publish newletter regularly.
- Information should be updated regularly.

- It was noted again that the major concerns in Sudbury are snow removal and getting passengers to and from outlying areas.

- The problem of municipal boundary constraints was discussed.

- D. Ridley noted that the City of Sudbury has no jurisdiction outside city limits.

- B. Clark noted that the consumer groups need to lobby and recommend transit services to the surrounding municipalities.

4. Findings to Date

Wayne Roberts reviewed the general activities conducted to date and the ongoing evaluation process.

5. Closing Remarks

Mr. McEwen thanked participants for their attendance and input. He noted that further evaluation work will be required prior to preparing the Task Force Report.

Minutes prepared by:

W. Roberts,

WBO:kmg/WBO.015
encl.

Presentation to the Task Force on Improved Accessibility of Conventional Transit Systems

by P.U.S.H. Ont. N.E. Region

Sudbury, Ont. December 14, 1987

I am June Ewen, a board member of P.U.S.H. Ont. N. E. Region. I was the N.E. Representive on the Provicial Board and their Representive to the Coalition of Provicial Organizations of the Handicapped (C.O.P.O.H.). As such, I know that equal access to transportation whether by a municipality, regional, intercity or provicial transportation systems has been one of the most important issue of concern identified by consumers all across Canada.

It continues to be a major barrier in preventing persons with disabilities from getting an education, a job, enjoying a social life and living independently within their community. Our senior citizens do not depend on accessible transportation to go to work, but rather on it for medical appointments, shopping and a social life they now have time to enjoy, and in participation in activities of the community. They can not do so because of the inaccessibility of the transportation system.

Sudbury has initiated many activities for the seniors and has made many of their facilities accessible to the disabled and seniors. Examples of this is the Sudbury Arena and the Sudbury Theatre, but if we can not get there - It was a waste of time and money.

We compliment this Task Force for taking this issue seriously enough to ask for consumer input into proposed changes.

Before I outline some of our concerns about the Conventional Transit Systems in the N. E. Region, I wish to reiterate our committment to the Presentation of P.U.S.H. Ont. to you December 2, 1987. I have a copy here with me, if you wish to refresh your memory.

One of the issues which was mentioned on page 3 of the paper is:
"Concern around the lack of paralled transportation to airports resulting in disabled people being unable to get to the airport." This is the case in Sudbury, although the Airport is run by the city there is no city transportation to it.

While we are mainly concerned to-day, in making Sudbury Transit System more accessible, I would like to point out we are concerned with the Regional Systems and rural towns in our area which have no buses or handi-transit vans. I think Kapuskasing as a good example of this and closer to home the Valley, where I live, the buses run every two hours along just the highway. Many of us live a mile or more from the highway, so the bus is useless to us. There is no bus service into Skead, and the Radar Road, so senior citizens and people who can not drive must depend on friends and families to come to Sudbury.

The answer is clearly a combined system, one that allows for door-door service for those who need it, as well as accessibility into the mainstream transportation systems, complimented with Handi-Transit whether non-profit, publically owned or privately owned.

This works very well in many cities. Calgary and Vancouver come to mind quickly. Disabled travellers to Vancouver for Expo 86 had nothing but praise for their system. In Calgary there is subsidized taxis for Seniors and disabled consumers who can not use the conventional transit system, as well as a Handi-Transit. For those seniors who can still use the conventional system there are free passes that are valid at any time in both Alberta and B.C. Not so in Sudbury, where although we have a reduced fare, we are not allowed to use the buses during rush hours without paying full fare. This can be very irritating when you have a doctor's or a dentist appointment and they are running behind times thus forcing you to use the buses during rush hours.

The questions that come to mind are:

Why the Senior Ciizens, here in Sudbury, who have paid taxes for years and many are still paying them have to pay any fare on the buses when other cities have no such policy? A good example is that the fare from Capreal is $7.00 return. Is this fair?

Why can we not get subsidized taxis in the city and region? Funding for expansion of exsisting Handi-transit systems from government?

One of the most voiced concerns in Sudbury are the snow piles in front of the bus stops and shelters, and we do not have enough shelters. It is hard for many disabled consumers and seniors, who are not eligble to use the Handi-Transit vans, to get from their homes to a bus stop in the winter months. Many visual impaired users of the bus system are frighten to use them in the winter because again of the snow piles at bus stops. When they go to get off, their canes sink into the snow unbalancing them and even disorientating them.

I understand that there are new buses capable of "kneeling" or having retractable lower steps and these have been suggested as a possible solution. I feel that I personally must play the Devil's Advocate as I do not know how these buses would work up North. One of my concerns is if our "freezing rain" or moisture should get into the mechanisms, it could render them inoperable. Even if they were enclosed in a water-proof housing, I can not seeing them being used in Sudbury where you must climb snow piles to board a bus. I can foresee someone being seriously injured by falling when they must not only climb but descend the snow pile to board one of these buses. The City must make a firm committment to keep these bus stops clear of snow, to even start making the present transit system accessible

Another positive change would be to sensitize the bus drivers in how to deal with the disabled and seniors without patronizing them. This should be included with every new drivers training and re-training of present drivers.

We hope that this Task Force will address these concerns and we, as P.U.S.H. N. E. are very willing to assist in any way in implimenting any changes to make the Tranportation systems in our region accessible.

I thank you for this opportunity to speak to you.

CNIB SUDBURY

PRESENTATION TO THE TASK FORCE TO IMPROVE ACCESSIBILITY TO CONVENTIONAL TRANSIT SERVICE FOR FRAIL AND AMBULATORY DISABLED PERSONS

December 14, 1987

Sudbury Council Chambers

Mr. Chairman, members of the task force, I speak to you this morning both as an Administrator of rehabilitation services for blind and visually impaired people and as a visually impaired user of public transit.

I wish to draw to your attention several factors which should be considered when addressing public transit for blind and visually impaired transit riders.

1. There are varying degrees of vision loss which affect the ability of the user. The totally blind traveller will use mobility aids such as a white cane or a dog guide. The visually impaired traveller will use his residual vision, sometimes in conjunction with a white cane.

In either case, the CNIB through its Orientation and Mobility Program is available to teach blind and visually impaired people to travel independently.

2. While many blind and visually impaired travellers can learn to board and travel on a bus or train, there may be some difficulty in travelling to the bus stop or train station. For instance, the independent white cane user is isolated after a snowfall. Even a light snowfall presents a barrier for the white cane user.

The individual learning to use a white cane needs to develop skills before he can travel to the bus stop by himself.

3. Once on board the bus, the blind or visually impaired traveller may need assistance to find a seat. Precise, verbal instructions are essential in this case.

4. One of the major problems encountered by blind and visually impaired public transit users is that everything is 'visual' including the bus stop, the number on the bus, the bus schedule, signs in bus and train depots.

The solutions:

- large print for the visually impaired traveller who may supplement his remaining vision with magnifiers or monoculars.
- courteous and informed transit staff who will take the time to explain and describe seat locations, call out bus stops, answer questions etc.
- in some European countries a 'voice synthesizer' strategically placed can tell the blind traveller the time, route number and location of the next bus.

5. If we are to make public transit useable and accessible by blind and visually impaired travellers we need to:

a) educate transit staff in how to assist by calling out stops and explaining obstacles.

b) provide large bus stops, large print bus schedules and large signs.

c) consider door to door or door to bus stop services especially in the winter.

d) investigate the use of voice synthesizer.

Mr. Chairman, this is only a quick coverage of some of the issues affecting blind and visually impaired transit users. I encourage your task force to continue to investigate ways and means of making the system more accessible. No doubt more frequent service covering more areas would help all users and I feel that some of the issues presented here would benefit many transit users.

Patrick Crowther
District Administrator

PC/sr

cc Dennis Tottenham
Gary Magarrell
Barbara Ann Arbuckle

A HAGI TRANSIT
SUBMISSION
ON
ACCESSIBLE GENERIC TRANSIT SYSTEM

PREPARED BY:
RICHARD J. MILES

DECEMBER 10, 1987

HAGI

HAGI TRANSIT INC.
A DIVISION OF
HANDICAPPED ACTION GROUP INC

150 CASTLEGREEN DRIVE
THUNDER BAY, ONTARIO
P7A 7T9

HAGI TRANSIT SUBMISSION

HAGI Transit is a non-profit corporation providing parallel transit service to mobility impaired persons. HAGI Transit is one of four companies owned and operated by the Handicapped Action Group of Thunder Bay. The goal of the Handicapped Action Group is to provide service so as to enable persons with disabilities to fully participate in an integrated environment. Services provided by the four companies of the Handicapped Action Group include personal support care, transit services, independent living services and recreational camping.

HAGI Transit began operations in 1974 and represented the first service operated by the Handicapped Action Group. The transit system operated in the first year through a grant from the Federal Government of Canada. A total of 2,500 trips during the first initial year of operations were accommodated at a cost of approximately $25,000. HAGI Transit succeeded in gaining financial support throughout the late 1970's through the Financial Assistance Group of Thunder Bay. In the 1980's the Ministry of Transportation and Communication began to provide provincial subsidies in various forms to parallel transit properties throughout Ontario. The intervention by the Provincial Government proved to be a significant factor in the development of parallel transit properties.

By the year 1988, HAGI Transit will have accommodated 61,000 trips using a fleet of twelve vehicles. The parallel transit property operates seven days a week including holidays and employs a staff of twenty-two full and part-time employees. During the past three years, HAGI Transit has witnessed a tremendous growth in demand for transit services. The demand for services is a direct result of the integration of persons with disabilities into community affairs. In Thunder Bay, the increased use of HAGI Transit services by senior citizens who have difficulty in boarding conventional transit has drastically increased the number of trips taken in the past two years. The influx of senior citizens using HAGI Transit has resulted in major expansions occurring over the past three years. As Thunder Bay is second only to Victoria, British Columbia in having a large proportion of its population over the age of 65 years, it is expected requests for this type of transit service will remain high through the 1990's.

Is is not surprising that the Ministry of Transportation as well as individual municipalities have been a target of disabled consumer organizations to make their transit systems more accessible. Given developements in other sectors such as housing, employment and human rights, it is inevitable that extreme pressure will continue to be directed at transit properties to reform their conventional systems to accommodate persons using wheelchairs. As an excellent example of where this intense pressure is having effect is the United States. Active lobbying by the Independent Living Movement in combination with enforced legislation has forced many municipalities to convert buses and subways to meet the transit requirements of mobility impaired persons.

While the movement towards converting conventional properties into accessible transit systems will undoubtedly create greater freedom for persons with disabilities to move within their municipalities, a sudden transformation may prove to be impractical if large capital expenditures are required. A fully accessible transit system whether it is located in Toronto, Ottawa or Sudbury will not address the needs of passengers who cannot reach a bus or subway stop to board the transit vehicles. This is a recurring problem for persons with both physical and mental disabilities.

In consideration of the rapid increase of ridership on parallel transit properties, it is the position of HAGI Transit of Thunder Bay that any large capital expenditure contemplated in the near future should be used to improve the availability of exsisting systems rather than implementing a massive campaign to retrofit conventional transit vehicles. HAGI Transit does not oppose a policy which attempts to convert conventional transit vehicles so as to make them more accessible to persons with disabilities as long as the costs of such an undertaking does not distract from additional resources required to operate parallel transit properties. The first priority for persons with disabilities in Thunder Bay is to improve the availability of HAGI Transit through the acquisition of additional vehicles and a fully modern computerized system.

Thank you for your time and attention.

Representatives of the Ministry of Transportation and Communications, Local Dignitaries and Interested Guests.

My name is Irvin Osborne or as many people know me as Ozzie.

I am here as Co-ordinator of Crusaders Handicapped Association as the North East Representative of Persons United for Self Help and as the Representative on concerns of the disadvantaged in reguards to issues dealing with transportation for the Coalition of Provincial Organizations of the Handicapped (COPOH) on behalf of these organizations I would like to express my thanks for the opportunity to address these issues.

The accessibility to the regular transit systems here in the North are hard at the best of times for even so called able bodied people and when it comes to those individuals with disadvantages it almost becomes impossible.

The major problem we face to make the present system more accessible is one of education.

FIRST we need to educate our municipal leaders in the maintaining of bus stops, having them well defined, in certain areas erecting bus shelters, keeping snow and other natural barricades cleared from stop areas, etc.

SECONDLY we need to educate the transit personnel especially the bus driver to the varied needs of the frail elderly, the sensory impaired, and the developmentally disadvantaged.
We need to educate them in the use of being an assistant to the frail elderly and those with physical or sensory disadvantages in helping them board and off load from their buses.
We need to teach them that those with developmental problems are human beings and to be treated as they themselves would wish to be treated.

THIRDLY public address systems should be installed in the buses with a compatible loop system and the drivers re-trained in the art of calling off stops for the hard of hearing and the visually impaired. Bus stop signs must be lowered and painted in colours that are easily readable by the vision impaired with curb, street and terminal floors treated in a universal manner to designate where bus stops or standing areas are for the visually impaired.

FOURTHLY stair risers should be of a contrasting colour to the tread area to make it easier to distinguish for those with a low vision problem.

Lastly but not least important accessible taxis must be implemented as soon as possible to be of assistance to the above mentioned people and also to cover times when the parallel transit system is closed or overloaded. It has been brought to my attention that a taxi company approached the city for approval and for assistance to help them receive federal funding for the capital outlay and was refused.

QUESTION

Are we in the North being led to believe that when the transit systems close for the day or are overbooked that the disadvantaged whether through AGE, PHYSICAL, SENSORY or DEVELOPMENTAL IMPAIRMENT will or do not have any emergencies arising at these times or is it because in the shuffle the second class citizen has emerged once again in the thinking of our leaders?

Thank you

Irwin A. Osborne

APPENDIX F

EVALUATION AND DESCRIPTION OF FEATURES

F.1 METHODOLOGY
    F.1.1 OUTLINE OF EVALUATION METHOD
    F.1.2 EVALUATION RESULTS
    F.1.3 SUMMARY EVALUATION

F.2 DESCRIPTION OF FEATURES

F.3 EVALUATION WORKSHEET AND SUMMARY TABLES

EVALUATION OF POTENTIAL FEATURES

F.1 METHODOLOGY

The evaluation worksheet was developed by the IACT/OUTA Task Force to help in the evaluation of the potential features. The worksheet is illustrated in Section F.2.

F.1.1 OUTLINE OF EVALUATION METHOD

Features were organized under several main categories, each of which applies to a particular aspect of Ontario Transit systems (i.e. bus stops, bus shelters, etc.). In each case, estimates of the total number in Ontario was provided in brackets beside the main headings (i.e. bus stops (70,000)). Each features was evaluated on several different criteria as evident from the worksheet headings. Each heading will briefly be discussed.

Contributes To:
An indication was given if the feature was considered to be an improvement to accessibility or safety for the frail and ambulatory disabled.

Benefits to Disabled Population:
For each feature, a level of benefit was associated with each of the four disabled groups; Ambulatory, Physically Disabled, Intellectually Impaired, Visually Impaired and Blind and Hearing Impaired. The levels of benefit were low, medium, high and disbenefit.

Weighted Total Disabled Population with Benefits:
Based on the level of benefit assigned, a weighted population total was calculated. Using arbitrary numerical factors; 1/3 for a low benefit, 2/3 for a medium benefit, 1 for a high benefit and-1/2 for a disbenefit, and the Disabled Group Population estimates (1), the weight total was calculated by suming the product of the factors and estimates for each respective group.

(1) Transportation for disabled persons in Ontario: Towards a strategy for the 1990s -Based on Canadian Health and Disability Survey, 1983/84.

Benefits to Able Population:

An indication was given if the feature was considered to be a positive benefit to the able-bodied population.

Capital Costs:

Each feature was evaluated on the basis of capital costs. Unit cost information for new and retrofits was provided by the MTC Transit Office from several sources. In the second column, a percentage of the total number in Ontario that has not been implemented was estimated. In the third column, the Provincial total was calculated by multiplying the unit cost by the number of units still to be implemented within the province(second column times the total number in Ontario).

Technical Feasibility:

Each feature was evaluated on the basis of technical feasibility. If the feature could be implemented within a five year period, an indication was given under the short term (ST) column. If the implementation period was greater than five years then an indication was given under the long term (LT) column. If it was considered that the feature needed further research and development, an indication was given under the R & D column.

Operating Costs:

Each feature was evaluated on basis of operating costs. The operating costs were divided into three levels: low, medium and high. For each feature, an indication was given as to the level of operating cost the feature would incur if implemented.

Priority:

Finally, based on the previous information each feature was given a low, medium or high priority with respect to implementation.

F.1.2 EVALUATION RESULTS

Each Task Force member was requested to conduct an individual evaluation using the evaluation worksheets described in the previous section. The results from the individual assessments were combined to form an aggregate summary. Using the aggregate summary, the Task Force proceeded to conduct a Summary Evaluation.

F.1.3 SUMMARY EVALUATION

The Task Force performed the summary evaluation by reviewing the aggregate results on a feature by feature basis. Each feature was categorized into one of four recommendations:

Recommended for Short Term Implementation
Recommended for Long Term Implementation
Recommended for Further Research and Development
Not Recommended for Implementation

The results of the evaluation are shown in Section F.3. In some cases recommendation were given for both new features and retrofits.

APPENDIX F.2

Description of Features

1. PASSENGER SHELTERS

1.1	Consistent passenger shelter placement where feasible	-	Place passenger shelters in the same location relative to passenger stops, sidewalks, buildings, etc.
1.2	Consistent placement of entrances toward sidewalk	-	All entrances should be consistently oriented. (i.e. all entrances should face the sidewalk where feasible).
1.3	Bright contrasting horizontal stripe on glass panels	-	Apply bright contrasting adhesive tape to the clear panels of a passenger shelter.
1.4	Bright contrasting vertical stripe on panels closest to the entrance	-	Apply bright contrasting adhesive tape to the panels closest to the passenger shelter entrance.
1.5	Entrances to face downstream of traffic	-	No additional information.
1.6	Entrances to face approaching traffic	-	No additional information.
1.7	Benches at selected location	-	Install benches inside selected passenger shelters or at selected bus stop areas.

2. BUS STOPS

2.1	Lower bus route signs to eye level	-	No additional information.
2.2	Talking bus stop signs	-	This is an experimental concept under test in the U.K. It involves transmitter equipment on buses and equipment at each bus stop sign to provide pre-recorded announcements of an approaching bus.
2.3	Colour code and/or number transit stops	-	No additional information.
2.4	Paint bus stop sign in bright contrasting colour	-	No additional information.
2.5	Eliminate protrusions and obstructions at bus stops-Relocate signs, newspaper boxes etc., that are		a potential hazard to the visually impaired.

2.6	Paint curbs in bright contrasting colour	-	No additional information.
2.7	Encourage enforcement of no parking in bus stop areas	-	Municipal bylaw to adequately enforce no parking in bus stop areas.
2.8	Encourage enforcement of snow/ice clearing at bus stops	-	No additional information.
2.9	Encourage enforcement of snow/ice clearing on sidewalks	-	No additional information.
2.10	Encourage coordination of land use planning relative to bus stops.	-	Where possible have bus stops as close as possible to public buildings, etc.
2.11	Public education to encourage orderly queuing	-	Inform transit users on proper queuing procedures.
2.12	Provide clear indication at major transit stops of where transit line-ups began	-	Use markings or signs to indicate start of bus line-ups.

VEHICLE FEATURES

3. DOORWAYS

3.1	Mark edge of doorways in a bright contrasting colour	-	Highlight bus doorways with bright contrasting adhesive tape.
3.2	Audio-Visual warnings for closing of vehicles' doors	-	No additional information.
3.3	Uniform door opening equipment	-	Door opening equipment should be consistent throughout the transit systems.

4. STEPS

4.1	Bright contrasting colour stripe on all steps	-	Apply bright contrasting colour paint to the nosing of all steps.
4.2	Ensure adequate lighting around steps	-	If necessary, increase brightness of stairwell lights.
4.3	Three Steps in the bus	-	Add an extra step to the standard 2 step entrance to reduce the height of each riser.
4.4	Heat duct in stepwells to prevent ice build-up	-	No additional information.

4.5	Kneeling buses	-	A mechanism which allows the bus to be lowered to curb level, providing easier passenger boarding and alighting.
4.6	Kneeling feature for rear door	-	See 4.5.
4.7	Automatic retractable stairs/steps	-	An air or electric operated retractable step permits easier passenger boarding by providing an additional step which extends below the lower bus step. The step is controlled by the driver.

5. FAREBOXES

5.1	Mark edge of fare boxes with contrasting colour	-	Apply bright contrasting adhesive tape or paint to edge of bus fareboxes.

6. SEATING

6.1	Priority Seating	-	Designate seats for use by the ambulatory disabled and frail.
6.2	Brighter overhead lighting in priority seating area	-	Increase brightness of bus lighting in priority seating areas when bus is stopped.
6.3	Floor level lights	-	Increase the brightness of lighting at floor level in the priority seating area when bus is stopped.
6.4	30 degree Angle priority seating	-	Rotate priority seats 30 degrees toward the front of the bus to help eliminate the jerking motion of passengers.
6.5	Increase number of priority seats	-	No additional information.
6.6	Bright contrasting seat coverings for priority seat	-	Cover priority seating seats with material distinctive from other seats.
6.7	Provide municipal bylaw for access to priority seating	-	A bylaw which will allow ambulatory disabled and frail regulated access to priority seating.
6.8	Padded stanchions in priority seating areas	-	Padded stanchion which provides non-slip support and safety for passengers.

6.9	Allow space for equipment	-	Take out one seat to provide storage space for equipment (e.g. walkers, crtuches, etc.).

7. SIGNAGE

7.1	Priority seating signage	-	Signage which identifies seats for use by the ambulatory disabled and frail.
7.2	Place priority signage on back of seats	-	Apply sewn on disabled emblem to back of priority seats.
7.3	Enlarge lettering on exterior signs	-	Make bus destination signs more visible by enlarging the letters and numbers.
7.4	Lower destination signs to eye level	-	Position the bus destination signs at the bottom of the bus side windows.
7.5	Ensure adequate lighting behind exterior signs	-	Make the bus destination more visible by providing adequate back lighting.
7.6	High contrast colours for bus destination signs	-	Make the bus destination signs more visible by using contrasting colours.

8. HANDRAILS

8.1	Ensure proper handrails and grab rails at vehicle entrances and exits	-	Handrails and grab rails should not be slippery to passengers boarding and alighting from vehicles.
8.2	Extend handrails to bottom step	-	Provide added support for passengers boarding and alighting from a vehicle.
8.3	Highlight grab rails and handholds with bright contrasting colour	-	Apply bright contrasting adhesive tape or paint to all grab rails and handholds.
8.4	Vertical stanchions and handholds	-	Vertical stanchions installed to provide added support for passengers.
8.5	Highlight vertical stanchions with bright contrasting colours	-	Apply bright contrasting adhesive tape or paint to stanchions.
8.6	Padded stanchions which offer "lean-against" support	-	Install stanchions which are shaped to support standing passengers.

8.7	Non-slippery texture on stanchions	-	Apply adhesive tape or alternative material which has a coarse surface.

9. COMMUNICATION DEVICES

9.1	Stop Request Sign	-	A back lit sign located at the front of the vehicle which indicates that the bus will stop at the next stop.
9.2	Improve P.A. system including microphones for drivers	-	Provide a public address system which will be beneficial to all passengers.
9.3	Stop announcements	-	Train bus drivers to verbally announce all bus stops.
9.4	Provide easily accessible passenger assist alarm	-	Position the alarm switch in a location that is accessible to all passengers.
9.5	Accessible stop request cord on surface vehicles	-	Position the cord in a location that is accessible to all passengers. The alarm would only alert the driver.
9.6	Stop request cord in bright contrasting colours	-	Make the stop request cord more visible by highlighting it with a bright contrasting colour.

BUILDING FEATURES:

10. STAIRS

10.1	Benches at the top and bottom of stairs	-	To provide a resting facility for the ambulatory disabled and frail.
10.2	Additional stair landings	-	For long stairways, provide landings for rest every 200 cm of vertical distance.
10.3	Extended stairway handrails	-	Extend the handrails beyond the top and bottom step to provide added support.
10.4	Handrails in the middle of wide stairways	-	For stairways over 2.2 m wide, provide a middle handrail for added support.
10.5	Bright contrasting stripe on each step	-	Apply bright contrasting adhesive paint to the nosing of all steps.

10.6	Textured floors at top and bottom of stairs	-	To provide an advance warning of steps to the visually impaired.
10.7	Electrically heat or cover stairways that are open to the elements	-	Supply heat or coverage to external stairways to prevent ice build-up and other potential hazards.

11. SIGNAGE

11.1	Signage with symbols	-	To provide information to the intellectually impaired and passengers with language deficiencies.
11.2	Place second set of signs at eye level	-	To assist the visually impaired.
11.3	Signage with large contrasting print	-	Make the signage more visible by using larger letters and/or high contrast colours.
11.4	Specialized signing for visually impaired such as signage with raised lettering (may be braille or embossed lettering)	-	To assist the visually impaired to identify all signage.

12. DOORWAYS

12.1	Improved doors (easy swing doors or automatic opener)	-	Ensure entrance doors are easily accessible by all ambulatory disabled and frail.
12.2	Ramps and curb cuts in transit facilities	-	Provide ramps and curb cuts at entrance ways.
12.3	Mark door handles in a contrasting colour	-	Apply a bright contrasting adhesive tape or paint to make the door handles more visible.
12.4	Visual indications on clear glass doors	-	Provide markings on clear glass doors to eliminate a potential hazard for everyone.

13. GENERAL BUILDING FEATURES

13.1	Accessible washrooms	-	Ensure that public washrooms are fully accessible to all ambulatory disabled and frail.
13.2	Highlight handrails with bright contrasting colour	-	Apply a bright contrasting adhesive tape or paint to make handrails more visible.

13.3	Additional/Modified benches for opportunities to rest	-	Provide frequent resting facilities for the ambulatory disabled and frail.
13.4	Coloured/textured floor markings where appropriate	-	To indicate to the visually impaired that there is a change in grade, barrier or hazard area.
13.5	Non-skid floor material	-	Apply a non-skid material to reduce the potential hazard when the floor is wet.
13.6	Amplification device in telephone handsets on public phones	-	Assist the hearing impaired in receiving information over the telephone.
13.7	Simplified operation of vending machines	-	Improve operating instructions and ensure machines are easy to use.
13.8	Modify height of vending machines	-	Lower the vending machines to make them fully accessible to all ambulatory disabled and frail.

14. STATIONS

14.1	Use of electronic displays for visual announcements	-	To assist the hearing impaired and others in receiving transit information such as, delays, schedules etc.
14.2	Public address system	-	To provide a means of communicating with the ambulatory disabled and frail, especially the visually impaired. This would benefit all passengers.
14.3	Modify fare collection boxes for easier access	-	To provide easier depositing of fares.
14.4	Increase diameter of high exit turnstiles at automatic exits and entrances	-	Provide easier access for persons that use canes or similar aids.
14.5	Mark edge of fare boxes with bright contrasting colour	-	Apply bright contrasting adhesive tape or paint to the edge of fare boxes.
14.6	Pictogram at entry/exit turnstiles	-	The use of symbols to convey information.
14.7	Platform markings for short trains	-	Markings or signs which indicate where short subway trains will stop.

14.8	Installation of emergency phones on transit platforms and in bus terminals	-	Install emergency phones to make it possible to contact the station attendant.
14.9	Flat coin inserts for phones	-	An flat openings for insertion of coins requiring less manual dexterity than old style pay phones.
14.10	Telephone enclosures which meet the floor	-	To provide safe access for the visually impaired by eliminating protrusions.
14.11	Installation of elevators in new/renovated stations	-	To improve accessibility for ambulatory disabled and frail.
14.12	Conduct escalator maintenance in night hours	-	To ensure that accessibility is maintained during regular user hours.
14.13	Installation of "moving sidewalks" where there is a long walking distance	-	No additional information.
14.14	Textured and coloured border at edge of transit platform	-	To indicate to the visually impaired where the edge of the subway platform is located.
14.15	Identify each subway station with a distinct visual feature	-	The features will assist the visually and intellectually impaired in identifying stations (e.g. colours, graphics, design).
14.16	Provide barriers to indicate dangerous areas	-	To restrict pedestrian movement away from hazardous areas.

15. OPERATING TECHNIQUES

15.1	Specialized information for the visually impaired and other disabled persons	-	Special information that will help people to identify specific or special features of bus routes or stations, etc.
15.2	Automated telephone information system	-	A telephone information system that gives auditory information about transit arrival times at specific bus stops.
15.3	Telecommunication Device for Deaf (TDD)	-	The hearing and speech impaired can use this device to acquire transit service information over the telephone.

15.4	Sensitivity training for all employees dealing with public	-	The training of transit personnel on how to properly assist the ambulatory disabled and frail persons.
15.5	Improved sensitivity training techniques	-	No additional information.
15.6	Identification cards for access to priority seating	-	A person displaying this identification card is identified as being entitled to the use of a priority seat.
15.7	Hire attendant to help with boarding at all times	-	No additional information.
15.8	Demand responsive service for improved accessibility	-	Provide door-to-door service such as Trans-cab, Dial-A-Bus, etc. as feeder service to conventional transit.
15.9	Bus hailing cards for those who cannot read the bus destination signs	-	This is a clear plastic folder with interchangeable route numbers inside. It is used by visually impaired persons to identify route numbers desired to approaching bus drivers.
15.10	Bus platooning with advanced warning and automated signage	-	A method where multiple vehicles stop at one location and passengers are given advanced warnings of the pssenger order.

16. MARKETING TECHNIQUES

16.1	Advertise priority seating on route guides and other material	-	Part of a program to provide information on conventional transit accessibility improvements.
16.2	Put equipment on display in mails and newspapers	-	See 16.1
16 3	Free use for blind and other disabled passengers	-	Free use of transit services for blind and other passengers.
16.4	Free use for attendees and trainers of frail or disoriented passengers	-	See 16.3.
16.5	Information distributed to Consumer/Interest groups	-	Distribute information on conventional transit accessibility improvements to consumer/interest groups.

16.6	Public education program	-	An education program that will provide regular transit users with information on how to properly use the accessibility features.

17. ADDITIONAL FEATURES ADDED AFTER EVALUATION

17.1	Additional shelters at selected locations	-	Additional shelters in high traffic areas (e.g. Senior's Homes, Rehabilitation Centres, Recreational Centres, etc.).
17.2	Improve priority seating signage	-	Investigate ways of making priority seat signage more visuable to users.
17.3	Installation of escalators	-	Install escalators to improve accessibility to ambulatory disabled and frail.
17.4	Provide escalators from street level to ticket level (TTC)	-	No additional information
17.5	Assistance to trainees, social workers, etc., who work with the disabled and frail	-	No additional information
17.6	Investigate Bell Canada Message Relay System	-	To investigate the service which is provided to the hearing impaired.
17.7	Investigate escalator improvement features	-	Improve safety and accessibility by reducing glare, alternating step colour, emergency stopping, etc.
17.8	Distribute training kits to the intellectually impaired on how to use transit	-	No additional information.
17.9	Assistance to trainers or frail and ambulatory disabled	-	No additional information.
17 10	Portable step and other user devices for disabled persons	-	Investigate devices which can be carried by disabled to improve accessibility.
17.11	Audio receivers for visually impaired	-	To assist the visually impaired in receiving important transit information by way of audio communication.

FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	10k	95k	160k											
1. PASSENGER SHELTERS: (10,000)																	
1.1 Consistent passenger shelter placement where feasible	X	X	L	M	M	L	290K	X	N 0 R $300	50	$1.5M	X			L	M	NEW - Recommended for Short Term Implementation RETROFIT - Recommended for Long Term Implementation
1.2 Consistent placement of entrances toward sidewalk	X	X	L	M	M	L	290K		N 0 R $300	50	$1.5M	X			L	L	NEW - Recommended for Short Term Implementation RETROFIT - Recommended for Long Term Implementation
1.3 Bright contrasting horizontal stripe on glass panels		X	M	M	H	L	420K		N $10 R $10	90	$90k	X			L	H	NEW & RETROFIT - Recommended for Short Term Implementation
1.4 Bright contrasting vertical stripe on panels closest to the entrance		X	L	L	H	L	280K		N $10 R $10	90	$90k	X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
1.5 Entrances to face downstream of traffic		X	L	M	M	L	260K		N 0 R $300	90	$2.7M	X			L	L	NEW & RETROFIT - Not Recommended
1.6 Entrances to face approaching traffic			L	L	L	L	220K		N 0 R $300	90	$2.7M	X			L	L	NEW & RETROFIT - Not Recommended

L - Low H - High
M - Medium D - Disbenefit

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H - High

F.3 EVALUATION WORKSHEET

FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL [illegible]SIBILITY			OPERATING COSTS	PRIORITY	COMMENTS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	I	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATIONS:			379k	18k	95k	169k											

L - Low H - High
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H - High

L - Low
M - Medium
H - High

FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
1.7 Benches at selected locations	X		M	L	L	L	470K	X	N 0 R $300	70	$2.1M		X		M	M	NEW & RETROFIT - Recommended for Short Term Implementation (selected locations)
2. BUS STOPS: (70,000)																	
2.1 Lower bus stop signs to eye level	X		L	L	M	L	200K		N $50 R $50	90	$3.2M	X			M	L	NEW & RETROFIT - Recommended for further Research and Development
2.2 Talking bus stop signs	X		L	L	M	L	280K		N R					X	M	L	NEW & RETROFIT - Recommended for further Research and Development
2.3 Colour code and/or number transit stops	X		M	M	M	L	380K		N $5 R $5	90	$320K	X			L	L	NEW & RETROFIT - Not Recommended
2.4 Paint bus stop sign in bright contrasting colour	X		L	M	M	L	610K		N $5 R $5	100	$350K	X			L	L	NEW & RETROFIT - Recommended for further Research and Development
2.5 Eliminate protrusions and obstructions at bus stops		X	L	L	L	L	280K	X	N $25 R $25	90	$1.6M	X			L	L	NEW & RETROFIT - Recommended for Short Term Implementation

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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
2.6 Paint curbs in a bright contrasting colour		X	L	L	M	L	280K		N $5 R $5	100	$350K	X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
2.7 Encourage enforcement of no parking in bus stop areas (Munic. policy decision)	X	X	M	L	M	L	530K	X	N 0 R 0			X			L	M	Recommended for Short Term Implementation
2.8 Encourage enforcement of snow/ice clearing at bus stops (Municipal policy decision)	X	X	M	M	M	M	600K	X	N 0 R 0			X			M	L	Recommended for Short Term Impomentation
2.9 Encourage enforcement of snow/ice clearing on sidewalks (Municipal policy decision)	X	X	M	M	M	M	600K	X	N 0 R 0			X			M	L	Recommended for Short Term Implementation
2.10 Encourage coordination of land use planning relative to bus stops (Munic. policy decision)	X		M	M	M	M	480K	X	N 0 R 0			X			L	M	Recommended for Short Term Implementation
2.11 Public education to encourage orderly queuing	X	X	M	M	M	M	440K	X	N R			X			L	L	Recommended for Short Term Implementation
2.12 Provide clear indication at major transit stops where transit line-ups begin	X		M	M	M	M	440K	X	N R			X			L	L	Recommended for Short Term Implementation

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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
3. VEHICLE FEATURES: 3.0 DOORWAYS (4420 BUSES)																	
3.1 Mark edge of doorways in a contrasting colour	X	X	M	L	M	L	610K		N $5 R $5	90	$20K	X			L	M	NEW & RETROFIT - Not Recommended
3.2 Audio - Visual warnings for closing of vehicle doors		X	M	M	M	M	440K	X	N $40 R $100	80	$350K	X			L	M	NEW & RETROFIT - Recommended for further Research and Development
3.3 Uniform door opening equipment	X	X	M	M	L	L	350K		N R			X			L	L	NEW & RETROFIT - Recommended for further Research and Development
4. STEPS: (4420 BUSES)																	
4.1 Bright contrasting colour stripe on all steps	X		M	M	M	M	470K		N 0 R $100	70	$310K	X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
4.2 Ensure adequate lighting around steps (one extra light in each stairwell)	X	X	M	M	M	M	470K	X	N $10 R $60	90	$240K	X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
4.3 Three steps in the bus	X		M	M	M	M	570K	X	N $150 R $400	100	$1.8M		X		L	M	NEW & RETROFIT - Recommended for further Research and Development

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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO: Access	CONTRIBUTES TO: Safety	BENEFITS TO DISABLED POPULATION: Phys. Mobil.	BENEFITS TO DISABLED POPULATION: Intel.	BENEFITS TO DISABLED POPULATION: Visual	BENEFITS TO DISABLED POPULATION: Hear	WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS: Per Unit	CAPITAL COSTS: %	CAPITAL COSTS: Prov. Total	TECHNICAL FEASIBILITY: ST < 5yrs	TECHNICAL FEASIBILITY: LT > 5yrs	TECHNICAL FEASIBILITY: R&D	OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
DISABLED POPULATION:			379k	18k	95k	169k											
4.4 Heat duct in stepwells to prevent ice buildup (both stepwells)		X	M	L	M	L	530K	X	N $100 R $200	90	$800K		X		L	M	NEW - Recommended for Short Term Implementation RETROFIT - Recommended for further Research & Development
4.5 Kneeling buses (with driver training)	X	X	M	L	M	L	500K		N $450 R $700	90	$2.8M		X		M	M	NEW - Recommended for Short Term Implementation RETROFIT - Recommended for Long Term Implementation
4.6 Kneeling feature for rear door	X	X	M	L	M	L	500K	X	N $1000 R $1000	90	$4.0M		X		M	M	NEW & RETROFIT - Recommended for further Research and Development
4.7 Automatic retractable stairs/step - MCI feature (as alternative to kneeling bus)	X	X	M	L	M	L	500K		N $500 R $800	100	$3.6M		X		M	M	NEW & RETROFIT - Recommended for further Research and Development
5. FAREBOXES: (4420 BUSES)																	
5.1 Mark edge of fare boxes with contrasting colour	X		L	L	M	L	280K		N $5 R $5	100	$25K	X			L	L	NEW & RETROFIT - Recommended for Short Term Implementation
6. SEATING: (4420 BUSES)																	
6.1 Priority Seating	X	X	M	M	M	M	600K		N 0 R 0			X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation

L - Low
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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
6.2 Brighter overhead lighting in priority seating area	X	X	L	L	H	L	280K		N $-5 R 0			X			L	L	NEW & RETROFIT - Not Recommended
6.3 Floor level lights (entrance & priority seating areas)	X	X	M	L	H	L	410K		N $50 R $70	100	$310K		X	X	L	L	NEW & RETROFIT - Recommended for further Research and Development
6.4 30 degree angle priority seating	X		M	L	L	L	350K		N 0 R $600	90	$2.4M	X			L	L	NEW & RETROFIT - Recommended for further Research and Development
6.5 Increase number of priority seats	X		M	L	L	L	350K		N 0 R $10	100	$45K	X			L	M	Leave to operator's discretion
6.6 Bright contrasting seat coverings for priority seats	X		L	L	H	L	280K		N 0 R $50	60	$135K	X			L	L	NEW & RETROFIT - Recommended for further Research and Development
6.7 Provide municipal bylaw for access to priority seating	X		M	M	H	L	540K		N R			X			L	M	Recommended for further Research and Development
6.8 Padded stanchions in priority seating areas		X	M	L	H	L	410K		N $125 R $125	90	$500K	X			L	L	NEW & RETROFIT - Recommended for further Research and Development

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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
6.9 Allow space for equipment (walker)	X		M	L	L	L	350K		N $-125 R $450	90	$1.0M		X		L	L	NEW & RETROFIT - Not Recommended
7. SIGNAGE: (4420 BUSES)																	
7.1 Priority seating signage (decals)	X		M	M	M	M	600K		N $10 R $10	60	$30K	X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
7.2 Place priority signage on back of seats (stitch decal onto back)	X		L	L	M	L	250K		N $100+ R $150	100	$670K	X			L	L	NEW & RETROFIT - Recommended for further Research and Development
7.3 Enlarge lettering on exterior front destination signs	X		L	L	M	L	280K		N $300+ R $500	90	$2.0M		X		L	L	NEW - Recommended for Short Term Implementation RETROFIT - Recommended for furthe Research & Development
7.4 Lower destination signs to eye level (side curtains)	X		L	L	M	L	280K		N $50 R $50	100	$230K		X		L	L	NEW & RETROFIT - Recommended for further Research and Development
7.5 Ensure adequate lighting behind exterior signs	X		L	L	M	L	280K		N $25+ R $50	90	$200K		X		L	L	NEW & RETROFIT - Recommended for Short Term Implementation

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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
7.6 High contrast colours for bus destination signs	X		L	M	H	L	290K		N 0 R $500	80	$1.8M		X		L	M	NEW & RETROFIT - Recommended for Short Term implementation
8. HANDRAILS: (4420 BUSES)																	
8.1 Ensure proper handrails and grab rails at vehicle entrances and exits	X	X	H	H	H	M	600K		N 0 R $70	50	$160K	X			L	L	NEW & RETROFIT - Recommended for Short Term implementation
8.2 Extend handrails to bottom step	X	X	H	H	H	L	550K	X	N 0 R $10	50	$23K	X			L	M	NEW & RETROFIT - Recommended for Short Term implementation (where possible)
8.3 Highlight grab rails and handholds with bright contrasting colours	X	X	L	L	H	L	280K		N $5 R $5	90	$20K	X			L	H	NEW & RETROFIT - Recommended for Short Term implementation
8.4 Vertical stanchions and handholds	X	X	H	H	H	L	540K	X	N $50 R $100	60	$270K	X			L	H	NEW & RETROFIT - Recommended for Short Term implementation
8.5 Highlight vertical stanchions with bright contrasting colours	X	X	L	L	H	L	280K		N $5 R $5	90	$20K	X			L	M	NEW & RETROFIT - Recommended for Short Term implementation

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H - High

FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
8.6 Padded stanchions which offer "lean-against" support		X	L	L	L	L	220K		N $200 R $300	100	$1.4M	X			L	L	NEW & RETROFIT - Not Recommended
8.7 Non-slippery texture on stanchions		X	M	M	L	L	350K		N 0 R $5	90	$20K	X			L	L	NEW & RETROFIT - Recommended for Short Term Implementation
9. COMMUNICATION DEVICES:																	
9.1 Stop request sign (Language Optional)	X		M	M	M	M	530K	X	N 0 R $75	60	$200K	X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
9.2 Improve P.A. system including microphones for drivers	X		M	M	M	L	420K	X	N $500 R $840	80	$2.8M	X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
9.3 Stop announcements (to include in driver training program)	X		M	M	M	L	420K	X	N R				X		M	M	NEW & RETROFIT - Recommended for Short Term Implementation
9.4 Provide easily accessible passenger assist alarm (Audio & Visual to driver only)	X	X	M	L	L	L	350K	X	N $200 R $400	90	$1.6M		X		L	L	NEW & RETROFIT - Recommended for further Research and Development

L - Low
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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
9.5 Accessible stop request cord on surface vehicles	X		H	L	H	L	500K	M	N $30 R $100	80	$360K	X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
9.6 Stop request cord in bright contrasting colours	X		L	L	H	L	280K		N 0 R $25	90	$100K	X			L	L	NEW - Recommended for Short Term Implementation RETROFIT - Recommended for further Research and Development

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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
10. BUILDING FEATURES: 10.0 STAIRS (18 SYSTEMS)																	
10.1 Benches at the top and bottom of stairs	X		M	L	L	L	470K		N $800 R $800	30		X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
10.2 Additional stair landings	X	X	M	L	L	L	470K		N $10k R $10k	50		X			L	M	NEW - Recommended for Short Term Implementation RETROFIT - Not Recommended
10.3 Extended stairway handrails	X	X	M	L	M	L	500K	X	N $50 R $50	50		X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
10.4 Handrails in the middle of wide stairways (over 2.2 metres)	X	X	M	L	M	L	370K	X	N $1000 R $1000	10		X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
10.5 Bright contrasting stripe on each step (costs are per step)		X	L	L	M	L	280K	X	N $5 R $5	70		X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
10.6 Textured floors at top and bottom of stairs (costs are per foot)		X	M	L	M	L	410K		N $13 R $13	90		X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation

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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
10.7 Electrically heat or cover stairways that are open to the elements		X	H	M	H	L	420K	X	N R				X		H	L	NEW - Recommended for Short Term implementation RETROFIT - Recommended for Long Term implementation
11. SIGNAGE: (18 SYSTEMS)																	
11.1 Signage with symbols	X		H	L	L	L	350K		N $5 R $5	50		X			L	H	NEW - Recommended for Short Term implementation RETROFIT - Recommended for Long Term implementation
11.2 Place second set of signs at eye level (flush with wall)	X		H	L	H	L	410K		N $25 R $25	80		X			L	L	NEW & RETROFIT - Recommended for Short Term implementation
11.3 Signage with large contrasting print	X		L	M	H	L	290K		N $100 R $100	60		X			L	M	NEW & RETROFIT - Recommended for Short Term implementation
11.4 Specialized signage for visually impaired such as signage with raised lettering	X		L	L	H	L	280K		N $200 R $200	70			X		L	L	NEW & RETROFIT - Recommended for Short Term implementation
12. DOORWAYS: (18 SYSTEMS)																	
12.1 Improved doors (easy swing doors or automatic opener)	X	X	H	M	H	L	520K	X	N $5000 R $5000	40			X		L	M	NEW & RETROFIT - Recommended for Short Term implementation (in appropriate applications)

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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
12.2 Ramps and curb cuts in transit facilities	X	X	H	L	L	L	470K		N 0 R $500	40		X			L	H	NEW - Recommended for Short Term Implementation RETROFIT - Recommended for Long Term Implementation
12.3 Mark door handles in a contrasting colour	X		L	L	H	L	280K		N $5 R $5	100		X			L	L	NEW & RETROFIT - Recommended for Short Term Implementation
12.4 Visual indications on clear glass doors	X		L	L	H	L	280K		N R			X			L	L	NEW & RETROFIT - Recommended for Short Term Implementation
13. GENERAL BUILDING FEATURES																	
13.1 Aaccessible washrooms (grab rails, rest areas, etc.)	X		H	L	L	L	470K		N $500 R $1500+	50		X			L	L	NEW - Recommended for Short Term Implementation RETROFIT-Recommended for Long Term Implementation
13.2 Highlight handrails with bright contrasting colour	X	X	L	L	H	L	280K		N $10 R $10	80		X			L	L	NEW & RETROFIT - Recommended for Short Term Implementation
13.3 Additional/Modified benches for opportunities for rest	X		H	L	L	L	470K		N $800 R $800	40		X			L	H	NEW & RETROFIT - Recommended for Short Term Implementation

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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
13.4 Coloured/textured floor markings where appropriate (ie. safety) (costs are per foot)	X	X	L	L	H	D	140K		N $13 R $13	90		X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
13.5 Non - skid floor material (costs are per square metre)		X	M	M	M	M	440K	X	N $2 R $2	70		X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
13.6 Amplification device in telephone handsets on public phones			L	L	L	H	330K		N R			X			L	L	NEW & RETROFITS - Recommended for Short Term Implementation
13.7 Simplified operation of vending machines (instructions)	X		L	L	L	L	220K	X	N R					X	L	L	NEW & RETROFIT - Recommended for further Research and Development
13.8 Modify height of vending machines	X		L	L	L	L	220K		N R				X		L	L	NEW & RETROFIT - Recommended for further Research and Development
14. STATIONS: (54 STATIONS)																	
14.1 Use of electronic displays for visual announcements	X		M	L	L	H	440K	X	N $6000 R	70		X			M	M	NEW & RETROFIT - Recommended for further Research and Development

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FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
14.2 Public address system	X		H	H	H	L	420K	X	N $1.4M R			X			M	M	NEW & RETROFIT - Recommended for Short Term Implementation
14.3 Modify fare collection boxes for easier access	X		M	L	L	L	350K		N R				X		L	L	NEW & RETROFIT - Recommended for further Research and Development
14.4 Increase diameter of high exit turnstiles at automatic exits and entrances	X		M	L	L	L	350K		N R			X			L	L	NEW & RETROFIT - Recommended for further Research and Development
14.5 Mark edge of fare boxes with bright contrasting colour	X		L	L	M	L	280K		N $5 R $5	100		X			L	L	NEW & RETROFIT - Recommended for Short Term Implementation
14.6 Pictogram at entry/exit turnstiles	X		L	M	L	L	230K		N R			X			L	L	NEW & RETROFIT - Recommended for Short Term Implementation
14.7 Platform markers for short trains	X	X	L	L	L	L	220K		N R				X		L	L	NEW & RETROFIT - Recommended for further Research and Development
14.8 Installation of emergency phones on transit platforms and in bus terminals		X	L	L	M	M	310K	X	N R				X		L	L	NEW & RETROFIT - Recommended for Short Term Implementation

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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
16.9 Flat coin inserts for phones	X		L	L	M	L	280K		N R				X		L	L	NEW & RETROFIT - Recommended for further Research and Development
16.10Telephone enclosures which meet the floor (also in Bus Terminals)		X	L	L	M	L	280K		N R	25		X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
16.11Installation of elevators in new stations	X		M	L	L	L	470K	X	N $500k R $700k	90		X			M	M	Recommended for Research and Development
16.12Conduct escalator maintenance in night hours	X		M	L	L	L	470K	X	N R			X			L	M	Recommended for Short Term Implementation
16.13Installation of "moving sidewalks" where there is a long walking distance	X		M	M	M	M	570K	X	N R				X		M	M	NEW & RETROFIT - Recommended for further Research and Development
16.14Textured and coloured border at edge of transit platform		X	L	L	M	L	280K		N R			X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
16.15Identify each subway station with a distinct visual feature	X		L	L	L	L	220K	X	N R			X			L	L	NEW & RETROFIT - Recommended for Short Term Implementation

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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
14.14 Provide barrier to indicate danger areas		X	L	M	M	L	290K	X	N R			X			L	M	NEW & RETROFIT - Recommended for Short Term Implementation
15. OPERATING TECHNIQUES:																	
15.1 Specialized information for the visually impaired and other disabled persons	X		L	L	M	L	280K		N R	100		X			M	M	Recommended for further Research and Development
15.2 Automated telephone information system	X		M	M	M	L	420K	X	N R	100		X			M	M	Recommended for Short Term Implementation (where warranted)
15.3 Telecommunication Device for Deaf (T.D.D)	X		L	L	L	M	330K		N $1200 R $1200	90		X			L	M	NEW - Recommended for Short Term Implementation (where application warranted)
15.4 Sensitivity training for all employees dealing with public	X	X	M	M	M	M	660k	X				X			M	M	Recommended for Short Term Implementation
15.5 Improved sensitivity training techniques	X	X	M	M	M	M	660K	X	N R				X		L	L	Recommended for further Research and Development

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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
15.6 Identification cards for access to priority seating (pin-on for those with poor hand function)	X		H	H	H	M	600K		N $15			X			L	M	Recommended for Short Term Implementation
15.7 Hire attendant to help with boarding at all times	X	X	H	M	M	L	540K		N R			X			H	M	Not Recommended
15.8 Demand responsive service for improved accessibility (eg. taxi service)	X		H	H	H	M	600K		N R					X	H	L	Recommended for further Research and Development
15.9 Bus hailing cards for those who cannot read the bus destination sign	X		L	L	H	L	280K		N $10 R			X			L	M	Recommended for Short Term Implementation
15.10 Bus platooning with advanced warning and automated signage	X		D	M	D	L	540K		N R				X		M	M	Recommended for further Research and Development
16. MARKETING TECHNIQUES:																	
16.1 Advertise courtesy seating on route guides and other material	X		M	M	M	M	440K		N R			X			L	M	Recommended for Short Term Implementation

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FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			370k	18k	95k	169k											
16.2 Put equipment on display in malls & newspapers	X		L	L	L	L	220K		N R			X			L	M	Recommended for Short Term Implementation
16.3 Free use for blind and other disabled passengers	X		M	M	M	M	440K		N R			X			M	L	Not Recommended
16.4 Free use for attendees trainers of frail or disoriented passengers	X		M	M	L	L	480K		N R			X			M	L	Recommended for further Research and Development
16.5 Information distributed to Consumer/Interest groups (costs are per year)	X		M	M	M	M	440K		N $5000 R			X			L	M	Recommended for Short Term Implementation
16.6 Public education program (ad ons, route guides, TV video, activity centres, visits to group homes)	X		M	M	M	L	380K	X	N R			X			M	M	Recommended for Short Term Implementation
17. ADDITIONAL FEATURES ADDED AFTER EVALUATIONS:																	
17.1 Additional shelters at selected locations																	NEW - Recommended for Short Term Implementation

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Operating costs:
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Priority:
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FEATURES TO IMPROVE ACCESSIBILITY OF CONVENTIONAL TRANSIT (IACTS)

FEATURES	CONTRIBUTES TO		BENEFITS TO DISABLED POPULATION				WEIGHTED TOTAL DISABLED POP. WITH BENEFITS	BENEFITS TO ABLE POP.	CAPITAL COSTS			TECHNICAL FEASIBILITY			OPERATING COSTS	PRIORITY	TASK FORCE RECOMMENDATIONS
	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
17.2 Improve priority seating signage																	Recommended for further Research and Development
17.3 Installation of escalators																	NEW - Recommended for Short Term Implementation RETROFIT - Recommended for Long Term Implementation
17.4 Provide escalators from street level to ticket level (TTC)																	Recommended for Short Term Implementation
17.5 Assistance to trainees, social workers, etc. who work with the disabled and frail																	Recommended for further Research and Development
17.6 Investigate Bell Canada Message Relay System (for hearing impaired)																	Recommended for further Research and Development
17.7 Investigate escalator improvement features (glare, colour, stop button)																	Recommended for further Research and Development
17.8 Distribute training kits to the intellectually impaired on how to use transit																	Recommended for further Research and Development

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	Access	Safety	Phys. Mobil.	Intel.	Visual	Hear			Per Unit	%	Prov. Total	ST < 5yrs	LT > 5yrs	R&D			
DISABLED POPULATION:			379k	18k	95k	169k											
17.9 Assistance to trainers of frail and ambulatory disabled																	Recommended for further Research and Development
17.10 Portable step and other user devices for disabled persons																	Recommended for further Research and Development
17.11 Audio receivers for visually impaired																	Recommended for further Research and Development

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